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REPORT RESUMES

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BEING AND BECOMING--A COSMIC APPROACH TO COUNSELING AND CURRICULUM, PART 2--THE CREATIVE INTELLECTUAL STYLE IN GIFTED ADOLESCENTS.
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A STUDY WAS MADE TO DESCRIBE, AND TO DISCOVER POSSIBLE WAYS OF INFLUENCING INTELLECTUAL AND PERSONALITY DEVELOPMENT IN NINTH-GRADE, GIFTED YOUTH. THIS REPORT, PART TWO OF A THREE-PART STUDY, REVIEWED THE RESULTS OF AN EXPERIMENTAL PROGRAM DESIGNED ESPECIALLY TO PRODUCE CHANGES IN ATTITUDES, INTERESTS, AND VALUES TOWARD CREATIVE INTELLECTUAL NORMS. THE INVESTIGATION CENTERED ON TWO DISTINCTIVE PATTERNS--THE CREATIVE INTELLECTUAL STYLE AND THE FEMININE DIMENSION. FORMAL AND INFORMAL MEASURES OF CREATIVE INTELLECTUAL ATTITUDES WERE ADMINISTERED AS PRE- AND POST-TESTS TO BOTH EXPERIMENTAL AND CONTROL NINTH-GRADE GROUPS. THE EXPERIMENTAL GROUP WAS FOUND TO BE HIGHER THAN THE CONTROL GROUP AT POST-TESTING IN ORIGINALITY, COMPLEXITY, AESTHETICISM, THEORETICAL ORIENTATION, AND PHILOSOPHICAL CONTEMPLATION. IT WAS CONCLUDED THAT ATTITUDE CHANGE COULD BE BROUGHT ABOUT THROUGH SPECIAL EFFORTS. (GD)

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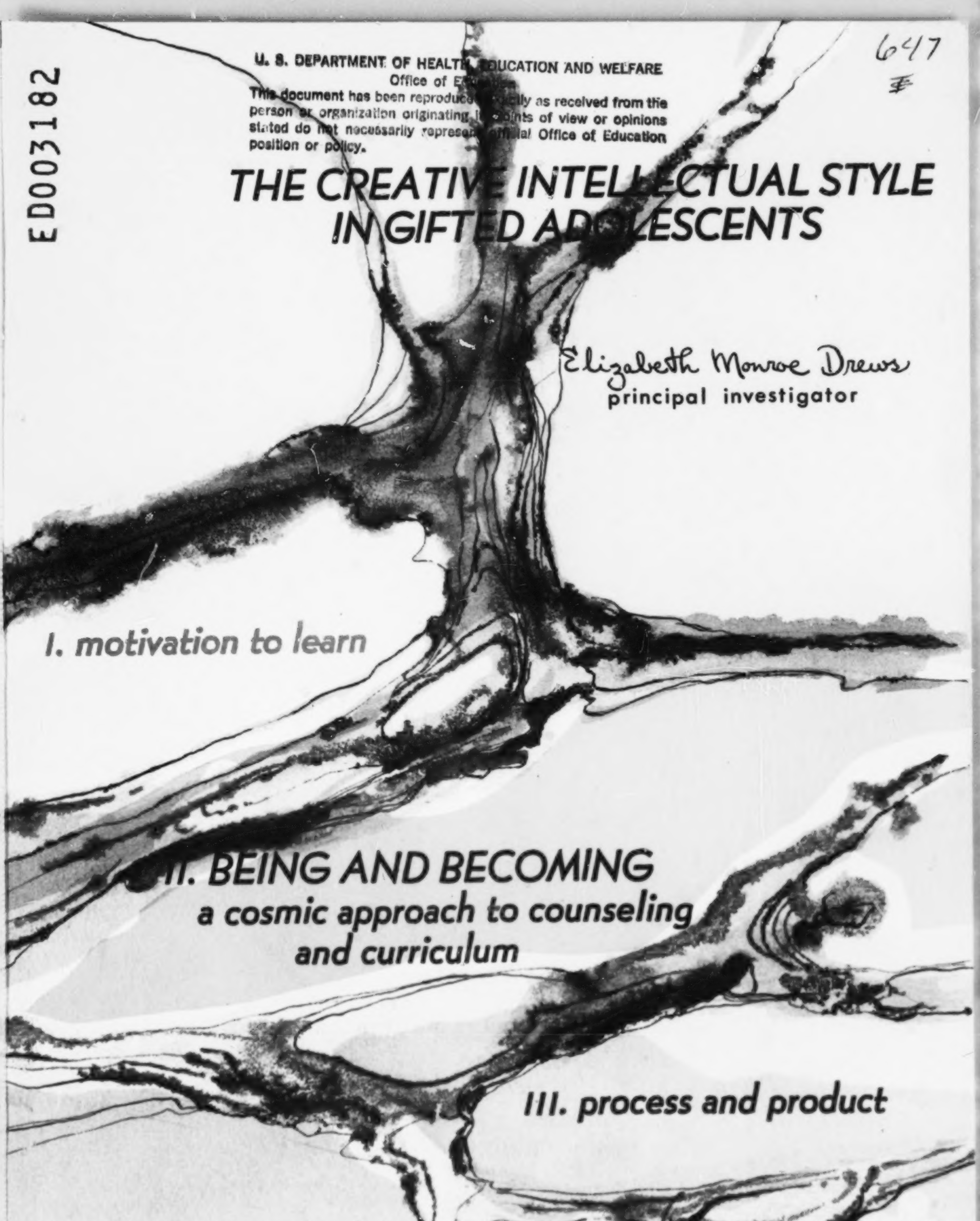

THE CREATIVE INTELLECTUAL STYLE IN GIFTED ADOLESCENTS

Elizabeth Monroe Drews
principal investigator

I. motivation to learn

II. BEING AND BECOMING
a cosmic approach to counseling and curriculum

III. process and product

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THE CREATIVE INTELLECTUAL STYLE IN GIFTED ADOLESCENTS
Being and Becoming: A Cosmic Approach to Counseling and Curriculum

Final report

Elizabeth Monroe Drews
Professor of Education

Final Report
of
Title VII, Project No. 647-I
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entitled

The Effectiveness of Audio-Visuals in Changing Aspirations of Intellectually Superior Students, Phase I

Michigan State University
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1965

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PREFACE

PREFACE

When the seed of an idea is planted and when the ecological situation is right, the proliferation of roots and branches of thought is far greater than even the rankest jungle growth. The human mind seems to have a fertility and a multi-dimensionality and a tolerance for tangle that far surpasses other natural forms of growth. And, when we consider both the human life of mind and that of spirit, we see a system of vast complexity, particularly when this is compared to the simplicities of man-made technological innovations. As a result of these realities about human thought processes and personality, and because my own ways of perceiving the world have come out of similar tortuous beginnings, the research which we will report reflects many human idiosyncrasies and convolutions. There are times when this profusion of ideas has caused me to wonder about the state of my mind, and no doubt my friends and co-workers have wondered, too. And yet, as I try to understand the dynamic process of intellectual and personality growth in gifted youth, the simple answers have seemed so obviously wrong that I have had to reject them almost as quickly as I have formed them.

My interest in the gifted began when, as a young college student, I worked in a prototypic learning center, the DeBusk Memorial Psychoeducational Clinic at the University of Oregon. Dr. Elizabeth Montgomery was the director and my mentor and my role model. For five years I shared her office as her assistant and, even though my major area was art,* I was encouraged to attend doctoral seminars in educational psychology and kindred areas from my junior year on. I found that formal rules about prerequisites were not used as detours and road blocks by my professors or by the dean. There was at least one term in my undergraduate years when I was excused from all class attendance so that I could teach full time in a public school program for the emotionally disturbed and I was allowed to receive credit for the sixteen hours I carried simply on the basis of examinations.

Fortunately, these opportunities to meet adults with flexible minds, who were willing to permeate boundaries and even to make new rules, continued. My major professor at the University of Michigan, Dr. Irving Anderson, was an innovator who brushed aside all that was trivial and non-essential whenever possible. Both Dr. Anderson and Dr. Montgomery introduced me to the fine points of scholarship and helped me to understand by their examples as teachers and researchers that critical and creative thought will flourish best in an atmosphere of skeptical optimism. Both brought humor and a well-bred bit of showmanship to the enterprise. They told me by word and deed that old dogmas should not lie unexamined and new conceptions should never go unwelcomed. My mental furniture has been in a state approaching Brownian movement ever since.

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*I also want to express untold gratitude to Maude Kerns, Brownell Frazier and the many other fine artist-teachers on the Art School staff who introduced me to the Aesthetic World and showed me in such a variety of ways what the creative process was all about.

Not only did these two remarkable professors provide models of excellence for me, but they both (although--as reading specialists and educational psychologists--they often concentrated on learning disabilities) were intensely interested in the gifted and in supplying a better education for this group. They both recognized that much of our education missed the mark, that conventional textbooks were banal and over-simplified and that the gifted child was usually forced to mark time if held to learning steps of orthodox size and rate. My work with them and my own observations have convinced me that in the schools today the gifted child is--if we use the criterion of appropriateness of instruction--our most underprivileged child.

Out of these early experiences--the pre-war ones in Oregon and the wartime and post-war ones in Michigan--I drew several conclusions. I knew, above all, that I was very much interested in the development of both intellectual and creative potential and I wanted not only to study this growth developmentally* but also to influence it. The reading clinics at Oregon and Michigan were never neat--children and materials were everywhere--and every teacher and child was encouraged to invent his own games, to write his own books, and to go at his own pace. Both centers, when in the full flower of summer activities, had the aura and often the sound effects of Bedlam, amiable enough and focussed enough to never quite reach riot proportions. Reluctant learners became less so, and for the occasional gifted learner there was often a new growing rate--as if the child had been transplanted, perhaps under a Buckminster Fuller plastic dome or directly into a tropic rain belt.

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*I must extend a sincere thank you to Dean Willard Olson, College of Education, University of Michigan, for the help he has given me in understanding the need to study many aspects of development with great care and over a long period of time.

In addition to and often concomitant with my clinic experiences I taught in the public schools--in Oregon and in North China. I was fortunate enough to have experiences with all grades, nursery school through high school. My husband's military service and assignments and our university experiences kept us endlessly peripatetic. All of this served to educate me (far more than any formal course work) and to make me aware that if we were to understand and document human growth, we must increase our vocabularies and open our eyes to new ways of perceiving. The range of differences (among eight-year olds and among fourteen-year olds and all of those in between or who come before or after) was beyond anything that was described in the textbooks. The gifted child could read at a level far more advanced and think in far more abstract and complex ways than I had imagined was possible. The books had closed the doors too soon. His philosophical insights often equaled, in directness and clarity, the time-honored epigrams which were carved above archways and under public fountains.

My convictions were that we needed new descriptions of the gifted, ones that embraced more dimensions and were at once global and infinitely detailed; and that we needed programs that truly taught critical and creative thinking in a context that provided ideas worth thinking about. My research efforts began in earnest the year that I finished my dissertation (1953) and when I was serving as director of psychological services for the Lansing Public Schools. Dr. Dwight Rich, Superintendent, and Dr. Forrest Averill, Deputy Superintendent, gave me continual encouragement, were open to new ideas and were willing to experiment.

In 1954 we began to document our observations of the gifted child and we had our first critical thinking seminars in the junior high schools in Lansing. Three public school administrators, Mrs. Margaret Blankenburg, Principal at Gier Park School, Miss Granella Smith, Assistant Principal at West Junior High School, and Miss Elizabeth Lawry, Assistant Principal at Sexton High School, contributed a very great deal to these early program formulations.*

As we studied the student in terms of attitudes, interests and values and began to speculate on achievement motivation, we did our work in the current idiom and used new instruments as they became available. We used McClelland's Need Achievement instrument, we used the Guilford Tests of Creativity, and we studied achievement in terms of school marks.

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*I also gained much through my work as a consultant at City and Country School, Bloomfield Hills, Michigan, where, under the imaginative leadership of George and Annemarie Roeper, an excellent program for the gifted was developed.

In 1957 Dr. John Teahan (a staff psychologist) and I completed a study on high and low achieving in gifted adolescents and reported particularly on parental attitudes toward achievement. We found, as might be expected, that the mothers of high achievers were more demanding than those of low achievers, but we remained quite perplexed as to what low achievement was all about. In the particular sample of gifted adolescents which we used for this "home influence" study, we found that our low achievers were reading, on the average, more books than our high achievers. As a result, we became increasingly alert in our classroom observations, and we asked new questions in our interviews with the students. Who were these low achievers? With the help of the students and as a result of new insights into personality development,* we rejected the idea that getting good grades in school was, per se, an indication of intellectual achievement or of motivation to learn for a gifted child. Some of the most serious and eager of learners continually questioned their teachers and all the easy-to-learn, ready-made answers that resided in textbooks. Thus, their marks (often low ones) did not truly reflect their knowledgeability or their interest in ideas, but rather their willingness to question the too obvious and the over-simplified. We came to call this group the creative intellectuals and to see theirs as a special kind of low achievement.

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*Allport, Fromm, Maslow, Murray, Rogers, Sanford and White were all writing about human growth in new ways, neither accepting the Freudian nor the behavioristic explanations. Their views coincided well with our observations and we found it easy to continue in our accustomed (and perhaps perverse) pattern of questioning the obvious, easy answers and the old formulas.

In striking contrast, we found another group of low achievers who rebelled against textbooks and formula learning for very different reasons. This group, which we called the social leaders, was not contemplative, did not like to play with ideas and was not made up of eager readers. They were far more interested in power (particularly if this gave them status) and in money than in the realm of the mind. In 1959 we carried out a pilot study to further investigate the dimensions of achievement and motivation and repeated this in 1960-1961. This study, now titled Motivation to Learn: Attitudes, Interests, and Values, was funded by the Cooperative Research Branch of the U.S. Office of Education and constitutes Report I in a series of three studies which we have completed and which all appear under the major title of THE CREATIVE INTELLECTUAL STYLE IN GIFTED ADOLESCENTS.

Report II is the study to which this volume is devoted and Report III, titled Process and Product: a Reassessment of Students and Program, is being prepared at the present time. In both Reports I and III of this series we have attempted to provide insights in terms of the personality growth and intellectual development of the able adolescent with creative intellectual inclinations. In Report III we report follow-up assessments made a year after our special program and depth studies of selected creative intellectuals. Our attempt is to provide a sketch of the environmental forces that have shaped their lives, their interests and their social adjustment, their personality and cognitive styles, and their plans and dreams of the future. Report II, with which the present volume is concerned, reviews the results of an experimental program designed especially to produce changes in attitudes, interests and values toward the creative intellectual norm.

Our work with the critical thinking seminars for intellectually superior students underwent similar transformations and reconsiderations. In the late 1950's a dean from an Ivy League university summarily informed me that we could not possibly be teaching critical thinking in our seminars, as I had contended--our materials were inappropriate.* Textbooks have tunnel vision or simply a bland point of view, and they did not present the multiple alternatives necessary for intelligent discourse on important topics. This was particularly true in the social sciences, he contended. As a result of these persuasive arguments and because we had already begun to realize the inadequacy of materials we were using, we resolved to make new materials and drastically revise our teaching approaches.

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*Our lack of any clear changes toward greater creative and critical thinking in our experimental groups also caused us to doubt the effectiveness of our material and

At about the same time we began to listen more carefully to the gifted students as they described the "ideal" school and teacher. They wanted to meet outstanding adults--artists and scientists; they wanted to do original research--on important topics; they wanted time to read--and not just in teenage books; and--above all--they wanted to talk about all of these things. They were asking about the world and about themselves, and they wanted to engage in a process of discovery with age-mates who were also philosophically inclined.

The new course which is described in this report came about as a result of these influences. We felt--if we were to foster critical and creative thinking--that we could not simply add footnotes to the textbook, but instead must bring students face to face with crucial and current issues and a range of divergent solutions. We felt that

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methods. We were also aware that our instruments for measuring change were inadequate and began a search for measures that would raise questions about motivation to learn, interest in ideas and openness to psychological growth.

the outlines and prescriptions for career choice (we chose a ninth grade social studies curriculum for revision which had typically dealt with careers) usually given were stereotyped and incomplete. Students must consider life style, goals and philosophical stances. To do this they must come to make sense to themselves and to others and finally as they make these discoveries they will perhaps feel free to shape their own lives. Throughout this time of exploration and discovery they must meet great minds and "stand on the shoulders of giants" or their intellectual growth will be severely limited. As Tennyson says in "Ulysses," "I am a part of all that I have met." We cannot expect our students to become something which they have not conceptualized.

These were the considerations that caused us to revise the original proposal. It seemed to us that intellectually superior ninth graders who are eminently able to handle the college experience should be making the decision to become as fully educated as possible rather than choosing a single career and narrowing the array of possibilities prior to entering senior high school. We became more certain as we studied biographies and reviewed the literature devoted to personality development and the study of lives that we must present to students a concept of total life style if we are to adequately help them to realize their potentialities. Thus, we felt that our films must reveal the spirits and the hearts of the models as well as the techniques they used and the routines they followed in earning a living. As a result, we built into the text and films a reflection of life style and values rather than the specifics of careers. These new directions were reflected in the revision of the original proposal which was submitted to the U.S. Office of Education on September 28, 1961.

As a result of these considerations, our new program came to have content that is not usually introduced to even the most able ninth graders and the format (we asked them to devise their own textbooks from a specimen book that we provided) provided both a pattern and flexibility. We wanted to advance a commitment to self-education and also to help students think carefully about the personal and non-academic side of their lives. We wanted to set the stage in such a way that students could become better informed and more intelligent and perceptive. We wanted them to meet optimistic, dedicated men and women, encounter hopeful (even utopian) views of the future, and to become aware of both the prospects and the problems that each individual faces as he struggles to become more truly human. Our effort was to capture the tone and color of evolutionary possibilities projected by Maslow when he said, "A new vision is emerging of the possibilities of man and of his destiny..."

The development of a new program, especially one that has as its basic goals establishing an open situation in which students can freely innovate, is a dynamic process without formal beginnings or ends. It was our hope that the new materials and approaches would enlarge the students' perceptions and that, although they may have discovered common purposes and values, they would be asking more questions at the end of the new course than at the outset. All of us who worked closely with the project were greatly influenced by the ideas we were attempting to implement. We literally became part of our experiment and were deeply affected not only by the ideas we included in our textbook and by the men and women who served as film models, but also by our own efforts to keep text and films (throughout all aspects of development) continually open to change, reflecting always our new perceptions and insights. It was an endless exercise in tolerance of ambiguity and was undoubtedly frustrating to many who worked only intermittently or on certain aspects of the project.

Beginning with the second year of the project (after we had made many experimental versions of text and films), two creative and dedicated workers, Mr. Douglas Knowlton and Mrs. Arlis Stewart, joined the project staff. As we worked together the research began to take on pattern and we became more sure of the directions in which we wanted to move. Mr. Knowlton, a film maker, helped to shape the films into individual expressions of the personalities, tastes and values of our models. Mrs. Stewart (formerly Thornblade) worked on all materials--the text, the films and later helped with the experiment itself. Both were open continuously to better ways to do things, to clearer perceptions of problems and solutions, and both were a delight to work with. A project of this nature that requires traveling in ice storms, going without food and sleep, carrying the impediments of technology, and re-writing, re-doing and re-taking endlessly cannot be carried through if the key staff is not only intelligently creative but also personally pleasant and physically resilient. Excellent general advice was contributed by Dr. Arthur Hitchcock, Executive Director of the American Personnel and Guidance Association, and by Dr. Walter Johnson, Professor of Education, Michigan State University, the two project consultants. In addition, Dr. James Gallagher and Dr. J. Richard Suchman, both at the University of Illinois, Dr. Robert Havighurst, University of Chicago, and Dr. Benjamin Shimberg, Educational Testing Service, Princeton, all provided encouragement and valuable suggestions.

Others who worked with many parts of the project were equally cooperative, insightful and helpful. Miss Barbara Powers was an excellent coordinating secretary, and a number of teachers and counselors provided new ideas and made efforts beyond the call of duty during the several years in which we developed and tested our ideas. Particular thanks are extended to Mr. Robert Trezise and Mr. Jack Riley, who both helped throughout and who supplied enthusiastic support. Mr. Trezise not only attended the meetings with the teachers, but helped in shaping the report into its final form during the 1964-1965 year. This has been an undertaking to which his grasp of literature and understanding of able young people has added much.

Many others made contributions at particular stages in the project--if any process with parts so completely interrelated can be said to have stages.

Help in the making of the Being and Becoming Film Series came from many sources. Capital Film Services supplied technical assistance throughout. A number of secondary students from Lansing and East Lansing reacted to the film sequences and made helpful suggestions. Several college students participated in the films and gave advice on scripts, and dozens of friends and members of the MSU faculty have previewed the films and made suggestions. A special debt is owed to Miss Karen Drews (now Mrs. Karen Kahan), Miss Susan Montgomery, Mr. Peter Nye and Mr. Thomas Rowland, who participated in the first film. Mr. John Klempner helped with several of the scripts and contributed many ideas. Mr. Mark Gamble, Miss Mary Jane Russo and Mrs. Emily Windoes all had roles in the films and played their parts well. To Miss Melody Sibert, then a ninth grade student at Bath High School, I extend my warmest appreciation for the dozens of hours she gave to the project. She not only participated in the films but also was one of our most perceptive critics.

The eight film models gave freely of their time and were not only gracious but also offered excellent suggestions. They were endlessly patient as we interviewed them, photographed them at work and at home, and revised scripts to fit newly filmed sequences. Somehow through it all they were able to communicate the excitement of new horizons and a freshness of vision. I am eternally grateful to each of our models:*

Eugene Petersen, historian
Mary Coleman, judge
Robert von Neumann, artist
Barbara Radmore, radiologist
Kay Britten, singer
Loren Eiseley, natural scientist
Anne Roe, social scientist
Harold Taylor, philosopher

The Four Worlds Textbook was also a group project. Several teachers who were also graduate students contributed much time to the construction of the textbook pages and joined eagerly into the arguments about what ideas should be featured. Each choice, whether it was an article to be digested or excerpted or an outstanding adult to be featured, was made only after extensive deliberation. In the early stages of the text construction, Mr. Stephen Krebs and Mr. Jack Riley, working with the pilot ninth grade classes, helped us to formulate our thinking about what the textbook might become. It was during this stage that a one world approach was broadened out to embrace four worlds--the natural, aesthetic, technological and human. Much of the basic work on the final text was done by Mr. William Helder and Mr. Robert Trezise. Not only did they make use of student selections of materials for the book, but also obtained student reactions to the book as it was constructed. In the final editing Mrs. Charlotte Whitney and Miss Jane Ward made major contributions. Mrs. Whitney did the art work throughout.

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*Listed in the order in which the films are used in the Being and Becoming Film Series.

Bibliographies were begun during the pilot year, and many secondary students made annotations of the books they read and supplied a wide variety of titles for our listings. The final bibliographies (in the form files of 5 x 8 cards in each classroom) were assembled by Dr. Rachel Noll with the able assistance of Miss Gertrude Hale of the East Lansing Public Library. Dr. Noll worked with great care, interviewed many teachers and librarians, and assembled an annotated listing of biographies and other books that students and teachers alike found helpful. A file of the original articles from which many of the original selections for the textbook were based was prepared by Mrs. Mary Merillat (formerly Bridenbaugh). Dr. Arthur Hitchcock, project consultant, also gave excellent advice and extensive help on the construction of the files of articles and pamphlets.

Many of these materials were tried out in the pilot program. Mrs. Frances Schneider of Pattengill Junior High School and Mrs. Faye Leyrer of Walter French Junior High School and their students contributed helpful suggestions, particularly in terms of the reading lists. Mrs. Beth Kerman tape recorded many of these class sessions and contributed insights as to ways that the films and reading materials could be improved. In addition, she specified teaching approaches that she felt were particularly effective. I want particularly to thank the students who participated in the experiments both those in the pilot study and those in the formal experiment. The latter group not only helped in many ways during the experimental year but also were willing to be retested a year later and many have been interviewed.

A number of Lansing administrators were both interested and helpful. As I said earlier, Dr. Rich and Dr. Averill were encouraging throughout. Dr. Averill in his role as Superintendent for Instruction was always willing to review our work as it progressed and gave time from his demanding schedule to work through directives for a pattern of scheduling to meet the needs of our research design. As in my earlier work, I feel that much that I have done was made possible by his willingness to help.

Mr. Harold Jacobson, as Director of Pupil Personnel and thus directly in charge of counseling and an advisor to the guidance courses and program, met with our group from time to time and always showed an interest in the work. Each junior high school principal also contributed in many ways and each showed interest in the new teaching approaches. Those principals who worked with the project were:

Mr. Robert Chamberlain, Pattengill
Mr. Hertye Feeman, Walter French
Mr. Robert Lott, West
Mr. Robert Maunder, C. W. Otto

Similarly the assistant principals in each junior high school gave valuable assistance in the project. They arranged for preliminary testing, helped with student selection and randomly scheduled a control and experimental group in each school. I sincerely thank each of the following:

Anna Brewer, Pattengill
Catherine Dettling, Walter French
Granella Smith, West
Maurine Vind, C. W. Otto

As is the case with all projects, one of the most difficult and demanding aspects is the clerical work, the endless tabulating and finally the typing of the reports. I am particularly happy to have had the intelligent and technically superior help of Mrs. Shirley Brown and Mrs. Jeanine Smith. Mrs. Janet Vignola has served ably as secretary and coordinator through the difficult last six months when bibliographies were assembled and footnotes checked. In addition, I would like to thank others who worked on the clerical aspects of the project. These include:

Georgia Kaechele
Sandra Koernke
Rebecca Marks
Joyce Messenger
Rita Pence
Tommie Sue Robertson
Caroline Wardell
Phyllis Zaiser

Statistical work and editing were demanding tasks. Mrs. Mary Merillat deserves particular recognition for her work as chief statistician. Miss Susan Montgomery, Miss Anita McClellan, Mrs. Ann Shelly (formerly Converse) and Mr. Gordon Whiting also helped with the statistics. Miss Pamela Hill and Miss Susan Montgomery did the major work of editing the original draft of the report which was

completed in June, 1964. This was then read by a number of individuals whose suggestions were kept in mind as the report was revised. Among these readers were: Dr. Arthur Hitchcock, Dr. Walter Johnson, Dr. Joseph Samler, Dr. Benjamin Shimberg and Dr. Arthur Traxler. Dr. Mary Devine, Mrs. Susan Emery, Mr. Eugene Rietfors and Mr. Robert Trezise all made important contributions and helped in editing the final draft.

Special mention must be made of the four teachers--Mr. Cal Anderson, Mrs. Kay Howell, Mr. John Leonard and Mr. Jack Riley--who participated in the experiment itself. Each revised his teaching approaches to meet the needs of the project, met with the project staff frequently, and graciously allowed us to tape record and to make observations of ten class sessions. Mrs. Caryl Anderson and Mrs. Arlis Stewart were faithful observers and handled the recording process well. Mrs. Anderson made the typescripts of the class discussions.

I want to acknowledge the help of the U.S. Office of Education staff, particularly Dr. Thomas Clemens who encouraged me to extend my explorations, to do Phase II of the study and to make the project summary film. I also want to thank Dr. Joseph Murnin who read the original draft of the report and who has been in close contact with almost all phases of our work.

Finally, I would like to express my deepest gratitude to my husband, Dr. Robin Drews. Our living room

became a classroom for the teachers and staff and our large study became a studio but, through all of the encroachments on his privacy, he remained helpful. Without his encouragement and the "open house" policy (extended to all project participants and cameramen as well) the project would have failed.

TABLE OF CONTENTS

Page

Preface i

List of Tables. xxv

List of Appendixes. xxvii

Part One: Background

Chapter

I. Significance of this Study

A. Needs of the Superior Adolescent. 1
B. The Scientific Revolution: Its Implications for the Guidance Program of Superior Students 14
C. Learning to Think: The Process of Learning as It Relates to the Education and Guidance of Superior Students 19
D. Beyond Cognition: Non-Verbal Learning as It Relates to the Education and Guidance of Superior Students 22
E. A Summary: The Needs of the Superior Adolescent as Related to Career Study . . 25

II. Rationale for Selection of Prototype-Model . 45

III. Psychological Theory and Research Related to the Creative Adult. 55

IV. Research Related to the Development of the Present Study. 67

Part Two: Curriculum Development and Method

Chapter

V. Development of Program

A. Technological and Social Change: Implications for Educational Change. 83

B. Program Aims: New Directions in Education. 91
   1. Education Redefined. 91
   2. New Skills and New Approaches to Learning 93
   3. New Content and Materials. 96

C. Content Change: The Being and Becoming Film Series 100
   1. Selection of Film Subjects and Script Preparation 104
   2. Film Production. 110

D. Content Change: The Four Worlds Textbook. 114

E. Content Change: Enrichment Materials . . 123

F. Program Aims as Realized in Curriculum Materials and Approaches. 127
   1. Education Redefined. 127
   2. New Learning Skills and Approaches . . 137
   3. Changing the Content and the Materials. 145

Chapter

VI. Method: Setting and Population Design and Instrumentation

A. Setting 159

B. Population. 163

C. Design and Procedures 168
   1. Introduction 168
   2. Pilot Study. 170
   3. Experimental Procedures. 172
   4. Control Procedures 181

D. Instruments and Hypotheses. 182
   1. Formal Measures. 184
   2. Informal Measures--The Creative Intellectual Style 190
   3. Informal Measures--The Feminine Dimension. 193

Part Three: Findings and Implications

Chapter

VII. Results and Discussion. 203

A. Creative Intellectual Values 205
1. Formal Measures 205
2. Informal Measures 217

B. The Feminine Dimension 229

VIII. Summary and Implications

A. The Concept of Utopia: Implications for Educational Change 243

B. Program Development: Being and Becoming, a Cosmic Approach to Counseling and Curriculum 256

C. The Experimental Study: Methods and Results. 259

D. Implications for Counseling and Curriculum Change 263
1. Demonstration and/or Dissemination of Programs and Materials. 263
2. Modification of Program and Reconsideration of Role of Teacher 265

E. Implications for Research. 276
1. Study of the Educational Process. . . . 276
2. Study of the Individual 279

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LIST OF TABLES

Chapter VI: Page

Table

1. Maximum and Minimum Populations by Schools and by Boys, Girls, Totals in Experimental and Control Groups 164
2. Means for Grade Level Scores on the California Reading Comprehension Test by Boys, Girls, Totals in Experimental and Control Groups 165
3. Means for Verbal IQ's on the California Test of Mental Maturity by Boys, Girls, Totals in Experimental and Control Groups. . . 165
4. Means for Percentiles on the Differential Aptitude Tests by Boys, Girls, Totals in Experimental and Control Groups. 166
5. Means and Medians for Parents' Education, Father's Occupational Status and Family Size in Experimental and Control Groups. . . . 167

Chapter VII:

Table

1. Mean Scores on the Omnibus Personality Inventory for Boys, Girls, Totals in Experimental and Control Classes 206
2. Mean Scores on the Allport-Vernon-Lindzey Study of Values for Boys, Girls, Totals in Experimental and Control Classes 208
3. Mean Scores on Dogmatism and Rigidity for Boys, Girls, Totals in Experimental and Control Classes. 209
4. Mean Scores on the Test for Critical Thinking for Boys, Girls, Totals in Experimental and Control Classes. 209

5. Mean Scores on the *Student Interest Survey V* Scales for Boys, Girls, Totals in Experimental and Control Classes. 218

6. Distribution of the Three Most Important Choices for Experimental and Control Classes on *Reasons for Occupational Choice* According to Creative Intellectual, Social Leader, and Studious Reasons 219

7. Totals in *Student Profile Check* Categories at Pre- and Post-Testing. 220

8. Comparison of Experimental and Control Students on Pre and Post *Ability Self-Concept* Ratings. 222

9. Comparison of High and Low Creative, as Determined by the *Omnibus Personality Inventory*, Experimental and Control Students on Post *Ability Self-Concept* Ratings. 222

10. Medians on *Acceptance of Women Scale* 230

11. Comparison of High and Low Scorers on *Acceptance of Women Scale* 230

12. Distribution of Choices on the *Self-Actualization in Women* 232

13. Means on *Acceptance of Women Scale* for Those Girls Choosing Level 3 Both Really and Ideally 232

14. Means for the *Humanitarian-Altruism Scale*. . . 233

LIST OF APPENDIXES

Page

- BIBLIOGRAPHY. i
- TESTS xxiii
  - STUDENT INTEREST SURVEY V xxv
  - REASONS FOR OCCUPATIONAL CHOICE xxxiii
  - REAL SELF DESCRIPTIONS. xxxv
  - STUDENT PROFILE CHECK xxxvii
  - SELF-ACTUALIZATION IN WOMEN xxxix
  - ACCEPTANCE OF WOMEN SCALE xli
  - THE HUMANITARIAN-ALTRUISM SCALE xlv
  - FORMAL INSTRUMENTS. xlix
  - INFORMAL INSTRUMENTS. liii
- OTHER MATERIALS lv
  - STUDENT REACTION AND EVALUATION SHEETS. lvii
    - FINAL EVALUATION. lvii
    - COURSE EVALUATION lviii
    - FILM EVALUATION lix
    - EVALUATION OF DISCUSSION BY THE STUDENT . . lx
  - LETTERS TO PARENTS AND STUDENTS lxi
    - LETTER FOR PARENTS. lxi
    - LETTER TO THE STUDENT lxiii
  - FILM RESUMES, BEING AND BECOMING FILM SERIES. . lxvii
    - Introduction. lxvii
    - Eugene Petersen lxx
    - Mary Coleman. lxxii
    - Robert von Neumann. lxiv
    - Barbara Radmore lxvi
    - Kay Britten lxviii
    - Loren Eiseley lxxx
    - Anne Roe. lxxxii
    - Harold Taylor lxxxiv
    - Postscript. lxxxvi

PART ONE:

BACKGROUND

I. SIGNIFICANCE OF THIS STUDY

A. Needs of the Superior* Adolescent

Gifted and talented adolescents are unsure as to their possible roles in the world today and are unaware of what the world may offer. They want and need to know, first, more about themselves and what the dimensions of humanness are; and second--an outgrowth of the first--they want and need to increase their awareness of the world. They are groping for an identity, and they want to know how they can fit into this multi-faceted universe. Fromm comments on the origins of such needs: "The fact that man has reason and imagination leads to the necessity not only for having a sense of his own identity but also for orienting himself in the world intellectually."[1] However, the search for identity and its complement, a desire to become aware of the world, cannot be accomplished without effort, particularly in our world of increasing complexity and expanding intellectual boundaries. Helping the gifted adolescent who has strong desires to understand this world and simultaneously to find himself calls for special effort on the part of the educator and the counselor. Stimulation and direction must be offered by the schools and the young person himself must become aware that he is responsible for his own evolution.

Self awareness develops from and involves a thoughtfulness about self especially in terms of needs, values, and talents. Awareness of the world comes as the individual samples areas of knowledge, the human causes men espouse, and a vast array of aesthetic experiences and human feelings. Both the experiences from within and from without must be extensive and vivid before the choices of directions and the commitments can be made that eventually give the young person a solidly grounded sense of identity.*

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*Superior, as it is used in this report, refers to intellectual superiority, particularly as this relates to ability to read and deal with verbal concepts and ideas, and in no way indicates a basic human superiority. When the term adolescent or young person is used in this study, it is to indicate this special population which does not mean that the same generalization or comment could not be made about all adolescents. Asterisks designate footnotes; these are brief notes needed for clarification. Numbers denote longer notes or bibliographic references; they appear at the end of this section.

This increasing awareness can, in the broadest sense, be described as "becoming educated." However, education is often incomplete or partial. Serious imbalances in the development of the able adolescent may occur unless there is a direct relation and compatibility among several kinds of growth. For example, the typical gifted young person who is a product of public school education is probably less mature socially and emotionally than he is intellectually. Part of this may be due to his above-average intellectual ability, but it also may be related to the fact that schools do little to foster positive affective growth. Thus we find many adolescents who are still grappling with the fulfillment of early, nurturant needs while their intellectual being is using the complex cognitive skills and wide-ranging information typical of college students.** Unbalanced development may also occur within the realm of the intellect itself when the definition is broadened to include non-symbolic as well as symbolic learning and humanistic as well as scientific knowledge.* Neither the traditional schools nor the schools in the forefront of today's educational revolution focus on the aesthetic and the intuitive learnings to the extent that they center on the cognitive, nor do the humanistic studies receive the emphasis placed on the scientific. In such a situation, the judging and controlling aspects of the personality may easily be developed at the expense of the deeper emotions and the subtler appreciations.

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*We have chosen to use the term much as Lindner did when he indicated, "Identity is a sense of uniqueness and individuality." (Robert Lindner, Must You Conform, 1956, Grove Press, Inc., New York, First Black Cat Edition, 1961, p. 199).

**At first knowing and thinking are in the service of needs, later they may become motives in their own right. This later stage is a level of development Maslow has called "growth motivation." (See Abraham Maslow, Toward a Psychology of Being, Princeton, N.J.: D. Van Nostrand Co., Inc., 1962).

Ideally the development of a more adequate educational program for able young people would be based upon much greater understandings of the special needs and characteristics of these adolescents than we now have.[2] Looking at one area of development, Torrance notes, "We have less scientific information about fostering creative thinking during the high school years than for any other educational level."[3] And what Torrance says of creativity can be applied to other neglected areas of adolescent learning--the nonverbal, the aesthetic, and the humanistic. However, the urgency of the situation is such that delaying educational innovation until there are adequate human development studies is unthinkable. We must assume, until contradictory evidence is available, that certain agreements which have been reached by humanistic social scientists** as to the needs of adolescents are valid; and we must act upon rather than disregard these insights.

There are, fortunately, a number of descriptive studies on the adolescent in general, although little research has been focused on the more able young person in the secondary schools. There is also a considerable body of widely accepted psychological and educational theory. By a process of interpolation (assessing the literature on the field-run adolescent and reinterpreting it in terms of the special needs and motivations that the more able young person demonstrates), by surveying the psychological literature, and by using insights we have gained from a decade of educational experimentation in the Lansing public schools, we can come to certain conclusions about a desirable program for gifted and talented adolescents. For example, most literature on the adolescent indicates that this age group has special problems of social and emotional adjustment due to their changing role status and that education must concern itself with these discontinuities. Psychological and educational theory repeatedly emphasizes that students will be more apt to develop full potential if taught in terms of their abilities and interests, that it is desirable for an educational program to "fit" the individual being educated. In other words, it seems that educational content can provide a genuine experience only when it reaches into the student's life and connects. Following this it must go beyond the student's knowledge and experience. Such an aim is based on the acceptance of the notion that the student should become all he can be and that education should capture each student's imagination and allow him to learn things that will make a difference in his life.

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*Huxley comments, "By themselves, the humanities don't humanize. They're simply another form of specialization on the symbolic level. Reading Plato . . . doesn't educate the whole human being." (Aldous Huxley, Island, Harper & Brothers, New York, 1962, p. 245).

**Among them: Bruno Bettleheim, Erik Erikson, Edgar Friedenberg, Robert Havighurst, Robert Peck and Nevitt Sanford.

The gifted adolescent has greater needs than the average in these areas just discussed, in social-emotional adjustment, and in receiving an appropriate education. We have already noted that there is apt to be an imbalance between social/emotional and intellectual growth due to his advanced intellectual development, and we assume that this will be compounded by the problem of changing role status. The "fit" of the school program is also more of a problem for the superior student since the typical curriculum and textbook are less apt to fit students who test two to five grades above level than they do students within the average range. It is impossible for a program to be challenging, i.e., to go beyond the student's knowledge and experience, when the curriculum and text are obviously terra cognita.

Not only do we need more understanding of the abilities and the affective needs of the able adolescent and how to tailor school programs to fit these needs, but we also should, if we are to offer effective education, know more about how he learns. How does one, as Huxley asks, " . . . turn the chaos of given experience into a set of manageable symbols"?[4] The intellectual aspects of his learning will be understood better as insights are gained regarding the abstract-generalization stage of learning and how productive thinking proceeds. The research and theoretical formulations of Piaget, Bruner, Gallagher, and others in this area are beginning to contribute important insights.[5]

The conclusions from such studies as are now available indicate that the more able adolescent is apt to show an early readiness and eagerness to confront abstractions and complexities. Education must foster his development in this direction. In the cognitive realm, the student must be encouraged in his efforts to think things through and to construct patterns; and teachers must learn to supply new alternatives as well as to challenge structures and conceptions which students have adopted unthinkingly. As Huxley observes, as the mind-body becomes trained it will learn more and more thoroughly and will be "more capable of relating facts to ideas, and both of them to its own ongoing life."[6]

"Knowing"*--the increase of capacity and knowledge--

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*This term is used here in the general sense in involves an enlargement of consciousness as well as the extension of cortical control. We must somehow try to understand non-verbal learning, an area even less understood than the cognitive. It is in this realm of aesthetic and empathic sensibilities--what Aldous Huxley called "the art of adequately experiencing"--that many of our most gifted and talented adolescents might excell. As Hebb and Thompson have pointed out--both ontogenetically and phylogenetically, with increasing intelligence there is increasing sensitivity.[7] Hollingworth noted that even among a population of gifted children the more intelligent are the more sensitive.[8] Unfortunately schools do little to work with this sensitivity, rarely do they offer training in perceiving and imagining. Yet these experiences in perception and imagination can be readily available through the inventive use of art forms and exposure to materials that are illuminating and entertaining. School needs to be neither obscure nor dull. Science can be taught more poetically.[9] And, as Taylor indicated, the arts--dance, music, painting, design, and sculpture--are forms of knowledge to be understood, it is true, but also to be directly experienced.[10] In these ways young people may learn to live richly as well as to refine and organize their feelings and their affective lives.

In education of this nature caution must be exerted not to overanalyze or to present packaged interpretations. Students should not be asked to immediately classify what they experience nor should teachers or texts dictate the inferences to be drawn. As has already been suggested, the materials to be presented should be appropriate to the developmental level of the student. But particularly, there

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which Bruner used it. (See Jerome S. Bruner, On Knowing, Essays for the Left Hand, Cambridge, Mass.: Belknap Press of Harvard University Press, 1962).

must be challenge. Materials which are grossly oversimplified* and which lack subtlety and complexity are not appealing to gifted students who already are becoming to be aware of the variety and patterns of unity in life. Huxley recommends that teaching should always recognize that "all living is relationship" and that the science of relationship be taught in conjunction with the ethics of relationships.[11]

Just as we know very little about how symbolic and non-verbal learnings occur, we also can only speculate as to how they contribute to full human development. However, there is agreement among most psychologists that such intellectual processes as critical and analogical thinking and a wide range of the aesthetic and empathic sensibilities contribute particularly to the growth of gifted adolescents.[12] These are the young people who show a readiness and an eagerness to confront abstractions and complexities, and their education will be less than adequate if we do not try to understand their motivations and behaviors in dealing with ideas and intuitive understandings. Above all, we must supply an atmosphere that will foster freedom of expression. Young people who are afraid to think cannot continue to develop psychologically. Both the individual and the society will suffer if our able youth, as well as all other young people, cannot begin to actualize themselves.

Despite the need for such programs, there is a dearth of planned guidance and of educational patterns which meet the superior adolescent's need to understand himself[13] and the multiple worlds to which he should be introduced.[14] The aim of teaching to think and to experience is rarely fulfilled nor is the objective of helping the student to understand himself and his surroundings realized. The student, generally speaking, has not been led to nor given opportunities for reflecting upon, verbalizing, and clarifying his confusion. With many, this lack of certainty leads to a readiness to accept stereotyped roles and careers and overly simple ways of thinking.[15] Some of these young people do not plan to go to college or to continue learning although many, particularly the girls, are well prepared and studious.[16] But they lack a sense of adventure and are loathe to break with tradition.

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*Friedenberg notes that in the schools the "quest for simplicity rather than meaning reduces its power to clarify the lives of students." (Edgar Friedenberg, The Vanishing Adolescent, Boston: Beacon Press, 1959).

The first requirement of an education is not met for many, particularly those students who have not become involved in their own learning. This group tends to see learning as something assigned by teachers and done in school and not as a self-initiated and self-sustained lifetime task. Without such a sense of self-direction coupled with a commitment to the learning process, a student's potential for continuing emotional and intellectual growth is limited. Studies show that a large majority of able students test relatively low on measures which indicate motivation to learn and potential for psychological growth.[17] As a result of this lack of involvement in such a fundamental aspect of their lives, many of our brightest young people do not find themselves; and many (as is true with perhaps the majority of Americans) will probably lead less than full lives.

There seems to be little doubt but that to meet these problems of our gifted youth, we must develop and test educational materials which will foster talent for thinking logically and coherently and a capacity for introspection. As we proceed in such studies, we will learn more about affective and cognitive growth. As yet the efforts to develop such programs and to reach such understandings have been limited. However, in a society such as ours, marked by an ever-increasing affluence and leisure, it is an imperative that we use some of this time and money doing the contemplative and imaginative research needed to disclose the ways and means of augmenting awareness and social participation. The few studies designed to produce changes of this nature have been surprisingly successful. For example, the Higher Horizons program in New York City has demonstrated that latent aesthetic and intellectual interests may emerge when potentially able students from culturally impoverished backgrounds are given special opportunities.[18] Ojemann has been developing teacher-training methods and appropriate curricular content to help elementary children learn that each has a part in arranging his social environment and each must take responsibility for his own development. The subject matter areas of social studies, health, and reading incorporate material to enrich each student's conception of the dynamics of behavior. Ojemann reports that experimental children, who have developed this new orientation, are significantly lower in authoritarianism on post-testing than control groups.[19]

There have been extensive studies on the effects of counseling, particularly as the process induces change in attitude. For many of these, the results have been inconclusive. However, in a 1962 symposium at the American Psychological Association Annual Meeting,[20] evidence was given that constructive personality change can occur when, according to Bergen, therapists have certain personal qualities and ways of responding to others, rather than a well-trained armamentarium of techniques. Truax reports that some therapists have negative, others positive effects on clients, and the combination of the results has seemed to indicate no improvement for anyone. The more effective therapists appear to be understanding and nonauthoritarian with an ability to reveal themselves as "real" people. In the same symposium, Shoben suggested that there are many possible therapeutic outcomes, the most crucial being

" . . . learning that occurs in psychotherapy in the acquisition of a functional, critically held, and personally relevant system of human values." It may well be that in order to stimulate certain kinds of growth motivation, e.g., identity formation and capacity to take in and act upon the world, a group process (counseling, discussion, or seminar) is equally as effective as the one-to-one situation. In fact, Lloyd-Jones and Westervelt recently commented, "Changes in institutional or community climate or educational arrangements may help student development far more than efforts at individual counseling. . . .[21]

There are many contexts in which more positive valuing of self and of psychological and intellectual growth may occur. Rogers holds that an environment of freedom and psychological acceptance encourages the individual to value himself and to take personal responsibility for his learning.[22] And Peck and Havighurst find that a permissive and accepting environment in the home encourages not only rational thinking, but also altruistic behavior.[23] However, for maximum development such psychological acceptance is not enough. Hunt indicates that richness and complexity in the environment promotes intellectual growth,[24] while White has shown that the developing organism strives continually to master difficult and complex situations.[25]

Those who teach and counsel adolescents should actively promote change by supplying responsive and stimulating environments which will cause students to expand their understandings of the world, develop a sense of individuality, and discover an ethical base. Wrenn strongly advocates that counselors not only seek to understand new social forces that are influencing young people, but that they apply new psychological insights into the nature of the individual to their work with students.[26] An extension of this idea would be that students also be helped to reach such understandings.* It is simply that the student cannot understand his environment or himself when he has not become aware of potentialities--his own and those of the world. He must come to understand the sources of his own behavior and his impact upon his environment. And he must make the process of self-examination habitual. This self-study is not to be construed as simply a review of transpired events but rather as an opportunity to plan for the renewal of mind and heart in the way that Gardner has suggested in Self-Renewal.[27]

In the planning of educational intervention to facilitate intellectual and psychological growth, the question arises as to what kind of programs young people want or see as desirable. In an effort to obtain an answer to this question, we conducted a study in which the interests, motivations, and values of over 400 superior high school students were examined.[28] The students were asked to indicate predilections and preferences. For example, specific questions were asked about school climates, kinds of teachers, and teaching procedures. And, from analyses of responses to hundreds of items, we have made certain generalizations. With respect to interests and attitudes toward learning, our conclusion was that superior students were not only quite different from one another, but also (when the total population of superior students was considered) quite different from average adolescents. For example, we found that a large majority (about four-fifths) of the superior students valued learning and doing well in school over being outstanding in athletics or being popular, while the reverse was true of average students.

In attempting to determine a way to describe the differing orientations within the population of superior students, we decided that three types would indicate the major motivational patterns that we had found. Each type focused on a particular achievement drive.

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*Counselors and the students with whom they work must be aware of social forces (overpopulation, irresponsibility in science and technology and use of resources, segregation, poverty, sub-standard education, prejudice, and war) and what steps they may take to counter these threats.

TYPE PROFILE	KIND OF ACHIEVEMENT DRIVE OR MOTIVATIONAL EMPHASIS
Creative Intellectual	Drive to deal with intellectual matters, to be contemplative and independent. Oriented toward theoretical, aesthetic, complex and original approaches.
Studious	Drive to perform in an outstanding manner in school, to get high marks, and to measure up to the expectations of those in authority (parents and teachers).
Social Leader	Primary drive is for power and money, exhibited by a desire to hold offices, to make major impact on people rather than in the realm of ideas.

Of the 400 adolescents sampled twenty per cent described themselves as creative intellectuals and about forty per cent indicated that they felt that creative intellectual teachers and school environments were desirable. When the number of gifted adolescents choosing descriptions of schools and teachers emphasizing learning (learning was seen as including both academic and creative approaches) was contrasted with those wanting to de-emphasize learning and focus on fun and social experiences, it was found that over eighty per cent of the entire group chose schools and teachers that stressed learning. Only a slightly greater number chose the conventional academic or studious orientation than chose a school environment stressing creative research, freedom of inquiry, and philosophical discussions. In other words, among a large sample of able students, we found that the majority not only wanted the school to emphasize learning, but that over a third wanted a kind of learning emphasis unlike that being offered in the conventional classrooms. They were fully aware of what they were not getting. Only a small per cent reported that they had ever had teachers or schools that were creative-intellectual in style.

The twenty per cent who were avowed creative intellectuals most often expressed discontent with the prevailing patterns in the school and spoke out for change. These expressions were not only apparent from the results and of our tests and questionnaires but also from our observations in classrooms and from the many interviews we conducted. These students with creative and intellectual inclinations had already discovered that they were uncomfortable with prevailing materialistic and hedonistic values and with over-simple explanations. They rebelled against the mechanized and robotized patterns forced on man and dreamed of human betterment and self-fulfillment. Toward this end, they sought to develop excellence in certain inner-directed ways, were alert to alternatives, and were willing to stand by their convictions. In other words, the life of the mind meant a great deal to many of these young people who had good minds.

Without new patterns of education which encourage self-examination and a search for a life philosophy which will offer opportunities to meet others of a similar persuasion, students such as these creative intellectuals feel alone and unsure. They have not met anyone like themselves or like their inchoate ideal; and they do not know how to work out a life pattern consistent with their emerging values. They need to discover others, adolescents and adults, who are sensitive and flexible as well as meticulous and logical in thought. In planning such educational programs, it will not always be possible to arrange for first-hand experiences with "significant others"; thus an array of vicarious experiences must also be planned. These can be provided through books or films[29] and can allow an adolescent to see the multiple ways in which creative adults develop distinctive life-styles, impose form on their environments, and deal with the unknown or complex.* By discovering such models, these young people may begin to understand that it is not only acceptable but also desirable to be all that they can be; and perhaps they will not sell out too quickly for a career role or a life pattern that asks for little intellectual or ethical commitment.

B. The Scientific Revolution: Its Implications for the Guidance Program of Superior Students

We have seen in the preceding section that, although there is much yet to be learned about the needs of gifted adolescents, what we do know now is enough to suggest that there be incorporated within school programs materials and approaches which will take into account both the cognitive (including the verbal and non-verbal) and non-cognitive needs of gifted young people. Such programs would be under the direction of individuals with counseling training who can accept young people and encourage their growth toward self-discovery and at the same time help them to reach an understanding of the world--its crucial issues and the changing boundaries of knowledge. Such changes in the educational pattern for the able students are necessary not only because of student needs, but also because of special educational problems posed by the mid-twentieth century scientific revolution. The section which follows will consider these changes and their implications for the psychological and intellectual development of the gifted adolescent.

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*The fully evolved, or self-actualized, man is a human being who has, in addition to a respect for life as we know it and a vision of life as it may be, a knowledge that he can make choices that will affect his own well-being and that of his contemporary and future counterparts.

The changing realms of knowledge, the shifting boundaries of careers, and the social needs of a world in continual transition make changes in career guidance necessary.[30] The problems which the adolescent faces are not just those of reaching maturity and finding an identity, but of accomplishing such feats in a world where change has become so accelerated that Norman Cousins, editor of the Saturday Review, can make the claim that " . . . 1924 was more than a thousand years ago." He asserts that this acceleration "has done more than impair the faculty of human observation and comprehension. It has created a tendency toward disorientation. It has unhinged the sense of vital balance that enables a man to locate himself in time and place."[31] We see now the special psychological needs of able young people intensified by their awareness of and responsiveness to the knowledge explosion, the shrinking globe, and the new patterns of human life. In the changing realms of knowledge perhaps the most dramatic change has been the revisions of and accretions in scientific knowledge, and to this change--more than to the others--education has responded.[32]

Throughout the country there is occurring what might be termed a revolution in scientific education. In the past decade an awareness of the importance of science and technological advances has led educators into an expansion of the science curriculum. Dramatic changes have been made in mathematics,[33] and in physics,[34] and there has been considerable progress in the development of new programs in the fields of biology[35] and chemistry.[36] There is some awakening of interest in other subject matter areas,[37] but the arts and humanities are still relatively neglected. The new programs have been concerned with both the content and the process of education;[38] but the importance they have tended to relegate to science and mathematics in the typical secondary school has made it relatively more difficult for adolescents to formulate a total education which will foster development of thinking abilities, aesthetic awareness, and an individual identity. The schools rarely provide experiences of an aesthetic nature; and, apart from attempts to teach inquiry in science, there are few efforts to help students think critically or productively. And although there are now available guidance theories and rationales which embrace both career development and personality development,[39] these have not generally been translated into program change. Thus students rarely have the opportunities to participate in the kind of group discussions and counseling necessary for the development of identity.

With the heavy emphasis on mathematics and science, there is a trend toward increasing specialization in subject matter by the teacher. Many teachers--and especially the more conscientious and able ones--have felt strongly the pressure to keep up with current advances and expanding knowledge, and have consequently been forced to neglect the total development of the student, much as the family doctor has given way to the specialist in an era of medical breakthroughs. The result has been an abundance of teachers, especially in the secondary schools, who are much more concerned with what they are teaching than whom they are teaching.*

As preparation for each discipline becomes more demanding, the possibility arises that only the counselor or a specially trained teacher will have the talent and the time to see the adolescent whole.[40] The typical secondary teacher does not have the psychological knowledge or the temporal latitude to help the student discover himself, the world, and the emerging interrelationships. There is a need for a new kind of teacher--one who might appropriately be called a "teacher-counselor-facilitator"[41]--to fulfill these functions. This individual would combine an understanding of curriculum content, would understand the nature of the classroom discussion process and interaction, and would have insight into the growth potential of the individual student. Working with students as they move toward discovery of self and toward the building of a coherent world view is already seen by Rogers and Super as theoretically feasible[42] and may become a major concern of the individual who fills this new role.

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*The content-centered teachers include more than those in the science and mathematics areas. Expanding knowledge in all areas has tended to make many teachers more conscious of content than ever before.

Such a reconsideration of the task of the counselor or teacher and perhaps a redefinition of guidance would involve new patterns of training. If, as Shoben suggests, guidance is to be more social reconstruction* than remedial function, there must be appropriate training and preparation for such activities.[43] The individual who assumes this new role will need most surely to be a generalist, with an expanded and diversified education based in the humanities and/or behavioral sciences. He must be familiar with and concerned with a variety of broad human issues as well as with the methods of scholarship. Ideally, he would be able to think critically, to formulate theories of knowledge, and to give pattern to his world. As Lloyd-Jones and Westervelt have indicated:

> Education for the new variety of guidance and student personnel work clearly needs broader theoretical foundations than presently exist. Sociology, social psychology, anthropology, economics and political science all have their places in guidance

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*Science and technology are reconstructing our social order in drastic ways, usually without a formal acknowledgment of the fact and often, seemingly, without a sense of responsibility. The social sciences and guidance must be aware of these changes, aware of the differences they will make in the lives of human beings, and as a counteractive they must institute educational programs that will encourage responsible consideration of the human condition.

> training, and added to these should be insights which can come only from philosophy and the humanities.[44]

To be accepted by able students this counselor-teacher should be a model of excellence in at least one area. However, the intellectual strength supplied by a fine general education is not enough; the new counselor must be a specialist in creating the climate which will encourage self-realization.

As a "significant other" the counselor must have explored and discovered his own self-boundaries. This will mean that he will undoubtedly be familiar and perhaps comfortable with self-appraisal and tolerant of the ambiguities which an open view of the world entails. Without such preparation he cannot give the student the systematic encouragement he will need if he is to begin to live an examined life, in the Socratic sense.

An individual with such background and outlook can contribute much in a person-to-person situation[45] to student development both by example and encouragement. However, not all learning* proceeds most effectively or economically in such dialogues. Group discussion in the classroom or in other settings must also be provided, with the counselor or teacher serving as catalyst or provocateur. Group work in the classroom offers a supporting community which could well give the student the confidence he will need for independent work later. There must be opportunities for values to be made articulate, and also to be criticized and revised as the result of encounter. As Camus has commented, the idea of personal freedom is bound up with intelligence and caring; and that intelligence can be developed only when we are free to examine, to question, and to be objective.[46] It will flourish particularly when the student's peer group or friends are also participating, and decisions and attitudes are voiced openly and responded to freely. There must be an atmosphere of acceptance and freedom--students should feel comfortable in discussing such fundamental questions as how man can be both free and responsible.

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*Self-discovery is seen as a learning process.

Thus, it can be seen that the ongoing scientific revolution and acceleration of knowledge has created new problems for schools and for able students; and if we can accept as one of the goals of guidance and of education the need of each student to understand himself in relation to his surroundings, it has created for the guidance program one of its greatest challenges. We must grant, of course, that this goal is not universally accepted by educational leaders or by teachers. We must also admit that even in instances when there is a stated acceptance of such an objective, the current patterns of teaching and counseling do little to assure its realization. Thus the scientific revolution is only one of the counter-forces making education for "being and becoming" a rare occurrence. We feel that this situation will not correct itself and that deliberate planning is needed which will make a new kind of guidance education, practiced by a "teacher-counselor-facilitator," both explicit and effective.

C. Learning to Think: The Process of Learning as It Relates to the Education and Guidance of Superior Students

We have seen in the preceding sections that the traditional guidance worker who deals with social adjustment and career and educational planning is probably inappropriate for the gifted adolescent. The mental health and educational-career needs of this able student are more adequately met if the focus is on growth experiences and a broad spectrum of knowledge rather than on personal problems or the specifics of careers. In such a program both cognitive and affective growth must be planned for, encouraged, and seen as inter-related.

Adolescents want to learn if learning becomes an opportunity to work on something that holds meaning for them. And adolescents want to consider issues of a public order--peace, the population explosion, and integration--as well as those which are intensely personal: "What do I do with my life?" and "How do I fit into the scheme of things?" However, important issues are not enough--there must also be philosophical stances, frames of reference, patterns of thinking, and a vision of the future.

Higher level intellectual abilities, and especially the ability to use logic and scientific method, are increasingly important in an age of burgeoning knowledge and technological virtuosity. Within a framework of rapid change, the more sensitive student has become dissatisfied with a situation which makes it extremely difficult to gain understanding of the broad picture and to assign values to knowledge which is being presented in an increasingly compartmentalized manner. Teaching of theory, despite its esoteric connotations, is practical and realistic. René Dubos, a noted bacteriologist, cautions that the detailed specialized information and facts we learn in school will be out of date before they can be applied, that only theoretical knowledge has a degree of permanence.[47] Another scientist, Robert Morison, asserts that machines will take over the storage of facts and many technical skills, leaving man " . . . generalization, synthesis, and judgment. . . . "[48] More and more, teachers must think about the mind as an instrument for learning rather than the mind as a storehouse of knowledge. As Cronbach said, "The aim of the new curricula is less to equip the student with the knowledge he is likely to need than to advance the student's awareness of the origin of knowledge, its trustworthiness and its limitations. More important than his learning any one fact in school is his willingness to learn from the discipline during his adult life."[49] All of these methods of "learning how to learn" and the new ways of looking at the structure of knowledge, to use Smith's term,[50] have advantages over rote-learning and recitation approaches in that they give the learner more autonomy, an essential when the learner is on his own--and certainly an essential for anyone who hopes to be creative.

The adolescent must take up a position with respect to his environment; that is, he must find out what he believes in and what he values.[51] In order to make these discoveries and go in his own direction, the student should have opportunities to test his personal knowledge against established knowledge. He should be presented with patterns of knowledge, and he should be aware of a variety of elements from which to make choices. He should see how knowledge enlarges and then is focused into a generalization--the way problems may lead into an issue. Such an open situation allows the student to form some new commitments, change some old ones--and develop his own patterns of values and understandings. In this process of inquiry the student must learn to make critical evaluations and use mature judgment; and, if he is creatively productive, he will be able to form fresh insights into relationships existing in the world. The student who learns to think--creatively and critically--develops his own information processing and self-programming system and derives his own generalizations. Learning to make decisions and becoming a "good chooser" is a function of student involvement in the process of decision-making. Unless patterns for organizing knowledge and systems for understanding the world are presented to him, the student will not have a unity of understanding which can be the basis for rational, responsible choice. Too often educational programs do not provide an atmosphere or a training ground for such development. Educators must understand that knowledge* does not usually become viable for the student unless it has appeal, is coherently presented and, most importantly, there is opportunity for each student to put it into his own terms.

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*Knowledge, as it has been discussed above, is to be considered a state of knowing as it was used on p. 5 and not just a familiarity with facts or principles within a discipline.

D. Beyond Cognition: Non-Verbal Learning as It Relates to the Education and Guidance of Superior Students

Education which uses and demands the use of the higher cognitive processes--hypothesizing, judging, integrating, and innovating; which has developed a receptivity to ideas and presented ideas worthy of contemplation; and which has supplied a solid grounding of theory and some skills in probing and inquiry--this kind of education can go far in inducting students into the ranks of lifetime learners. But even this kind of education does not explore the limits of what is possible in our schools. It is the thesis of this research that, if the objective of education is to be full human development, it must do more than emphasize the cognitive and foster skills in theoretical and abstract thinking. Each individual has aesthetic and human dimensions (often non-verbal in nature) which must mature if he is to become self-actualizing. Proportionately more young people today can be termed intellectually gifted than was true a generation ago. However, psychologists and philosophers, anthropologists and sociologists, and all who are humanists (deeply concerned with the future of man), realize that intellectual excellence is not enough. Recently educators and others have begun to question the value of our greatly expanded scientific knowledge in the relative absence of wisdom about what to do with it--how to live in graceful and self-fulfilling ways. For full development, there must be both moral concern--a developed conscience; and certain creative behaviors--independence of thought and freedom of the imagination. As Anne Roe has penetratingly said, "The man so completely immersed in his work as to ignore social problems, however important his work may be in the long run, is less than a man and so has failed the thing most requisite upon him."[52]

The current technical and scientific emphasis in our society parallels at least two other striking social changes. Leisure time is for the first time in plentiful supply and rapidly becoming a surplus commodity--one that demands planning and preparation if it is to be well spent--and concomitantly there is a growing interest in and willingness to take action on human problems.[53] In general terms this can be described as an increase in public morality. These two changes can be complementary. Leisure time activities can be and already are in many cases humane and altruistic. Students must be prepared to deal with both issues--the problems presented are too large and too basic for the schools to neglect. This will mean an awareness of total life styles and of the rich possibilities that leisure can offer. An appreciation of the aesthetic as well as the human must be deliberately built into the curriculum if all students, and especially the girls, are to lead better, fuller, and more exciting lives. Such a venture--including the encouragement of girls to exercise their full potential emotionally and intellectually--is a sharp departure from present patterns. If such an education were possible, boys and girls alike might become receptive to a wide range of experience (and aware of aesthetic nuances); and the intellectually superior young people could become open to the possibility that not only can they and must they become self-actualizing, but that they must plan to make life better for others. In their education we must be concerned with caring and not with just training the intellect. Tenderness is fully as important as knowledgeability; compassion as important as competence. In fact, Gabor predicts, " . . . the coming of a world . . . [in which the common man lives] for his own happiness, not for the glorification of his rulers; and . . . the uncommon man . . . finds his fulfillment in enriching the life of the common man."[54]

With the changing styles of life that leisure offers and the human concern that a physically crowded, mobile world demands, it is imperative to educate people to appreciate and to care about many aspects of the environment by increasing sensitivity to primary experiences. The importance of fostering this kind of sensitivity is noted by many "third force" psychologists.* Their insights into the process help us to understand what it is. This awareness may lead to a sense of awe and amazement, a quality described by Einstein as " . . . a sort of intoxicated amazement at the beauty and grandeur of this world. . . ."[55] Unfortunately most students do not have opportunities to experience or to express themselves in primary and direct ways. And yet many fully developed human beings already want, as Murphy suggests, " . . . the world in all its fullness, to understand it and interact with it."[56] To meet this need, we must make every effort to increase the student's perceptual receptivity and to reduce his perceptual dependency. The goal is to achieve an openness to all experience and an ability to learn from everything--the natural world, technological innovations, aesthetic experience, and human encounter. We must help people to reach out and grasp the beauty of the world. This freeing of the imagination and development of the capacity to be fully alive means that students must be concerned with being, not just having or doing. As Whitehead said, "When you understand all about the sun and all about the atmosphere and all about the rotation of the earth, you may still miss the radiance of the sunset."[57] In this way, the learner is always enlarging his universe, and education becomes a continual act of creation.

There is ample evidence that existing programs are not consonant with psychological theory and mental health formulations and that they do not accomplish their stated objectives: teaching students to be aware, to think, to make their own decisions, and helping students to eventually define themselves. If we do not propose innovations and develop new programs which are aligned with our goals and theories we are, in essence, repudiating these concepts. If we believe in our aims and feel that we can reconcile psychological theory with classroom action or guidance activity yet do not try to do so, we are not truly committed to our beliefs.

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*Among the "third force" psychologists are E. Fromm, K. Goldstein, A. Maslow, G. Murphy, C. Rogers, and H. Sullivan.

E. A Summary: The Needs of the Superior Adolescent as Related to Career Study

From our survey of the situation we have concluded that educational programs are not generally designed to help students acquire a personal and well-integrated sense of individuality, to teach students to think logically, or to make them maximally responsive to the world and its possibilities. We have also seen that many able students want more intellectual stimulation, more opportunities for self-direction, and more occasions when they can have philosophical discussions. Social studies, and in particular the career units in social studies, would seem to offer an ideal place where a new approach and new materials might be used. A survey of these career courses and unit offerings revealed that they usually did not take into account the following specific considerations:

First, the need to present the range, the complexity and the changing nature of the world,* particularly in terms of the acceleration of knowledge as it affects the patterns of career development. An overview should include a grasp and comprehension of:

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*Bertrand Russell, The Conquest of Happiness (Horace Liveright, Inc., 1930, and republished in New York: Avon Book Division, The Hearst Corporation). " . . . a large conception of the life of man and his place in the universe . . . is in itself a thing of great value." p. 144.

(1) the emerging and plastic nature of careers;

(2) the extension of the meaning of career to include psychological and social dimensions, life philosophy, and value systems;

(3) revised ideas of work and the worker, which include the demand for high level talent, the need for the scholar-generalist, and the conflict between human needs and technological innovations.

Second, the need to present life patterns through role models and thus make it possible for students to form identifications; and to recognize from these examples that they too can shape their destinies, make sense out of their lives, and most importantly, understand and value the fragility and uniqueness of life.

Third, the need for able students to learn to make decisions. This will mean that they must learn to weigh alternatives, to tolerate ambiguity and openendness, to know that life is infinite in its possibilities, that psychological maturity is a continuously evolving condition, and that career decision itself should be made only tentatively until the multiple dimensions of the world are explored.

And fourth, the special needs of able adolescents due to their advanced intellectual development must be considered in any educational planning in order to compensate for possible imbalances of growth and to develop programs which offer sufficient challenge.

Careers are changing rapidly at all levels. In fact, it is virtually impossible to keep publications abreast with current social needs and technological breakthroughs that dictate the new work roles, much less predict what these will become in the next decade when today's adolescents are ready to enter their careers.[58] Accelerated change in the society has resulted not only in the creation of entire new fields of endeavor, but also in a diversification and expansion of the kinds of work involved within a given occupation. Thus, it is no longer meaningful to talk about medicine or law simply as careers.[59] These terms, which might once have had descriptive value in specifying the kind of work an individual did, are now merely descriptive of subject matter in a highly general sense. They say very little or nothing about how an individual works, what skills he employs, or even the scope of his activity.

Guidance must take into account both what is known about the human being, including his growth potential, and what is known about the world: knowledge, information, and the careers that represent man's reciprocal relationship with the outer world. This need for guidance programs to contribute fundamentally to the development of the total personality and to the richness of experience that would make possible a full and meaningful life seems to be consistent with phenomenological and mental health emphases in psychology[60] as well as with the explicit aims of many leaders in the field of guidance and education. It appears to be necessary and inevitable that occupational exploration become a psychologically based endeavor, as Samler has suggested.[61] And it seems unnecessary to make a special plea for such development--the need is all too apparent. Man can enlarge his belief in and his understanding of himself and others, or he can become more separate and more despairing and more alienated.

The meaning and nature of work in our society is changing in revolutionary and unprecedented ways. The careers that our most able youth will enter will often be of their own making or at least will reflect their own pattern of specialties and personality strengths. Thus, it is necessary when considering upper echelon positions in management, in research, and in creative endeavors to take a dynamic and broad-gauge view of career development and to develop a program which presents visions of the future and evocative models as patterns.

The generalist will, as Morison points out, become more and more important as machines take over the routine and the technical.[62] The education of this generalist must be a broad one, and it will demand an evolved and sustained intelligence. Thoughtful and informed human beings will be needed to weigh and make decisions about the developing conflicts between men and machines. The future is too important to leave to the machine-tenders and the technicians. The major emphases of work may easily change and will need to be changed; for, as survival needs are met, there will be time for much-needed activities and work in artistic areas, with nature (conservation and beautification), and with people. Service careers could come to assume new importance, especially the augmented concern that the uncommon man must develop for the common man.* It seems particularly important to us that these able students understand the implications of Lindner's statement, "Each human being is appointed his brother's keeper at birth."[63]

It is necessary that our college-bound young people develop these understandings, seeing both their responsibility for others and at the same time how their work can be, in Havighurst's terms, an ego-involving activity.[64] They will need to know that work and play are often indistinguishable if one's commitment to long-term goals is very strong. However, students may not be aware of such possibilities unless creative and scholarly patterns of life are presented. As much as possible, these presentations should be made through "real" people who have exemplary qualities.

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*Self-respect and a sense of identity for the majority may have to be developed in realms other than the career and the occupation.

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Biographies, films, and direct contact can give students experiences with life styles and value systems with which they may identify profitably. These will help students to see that the self-actualizing career and life-styles come only after a good deal of exploration and development and decision-making.

Learning the art of critical thinking or decision-making is as basic an aspect of the education of able students as introducing them to the diversity of careers and life styles that are found among creative and contributive adults. Students need not only to know the range of possible alternatives but also they must learn how to make choices consonant with their values.

Learning to make decisions in no way should be inferred to mean that an early career decision is desirable. Gifted young people must guard against such limiting and premature channeling of their efforts. The need for the continuation of exploration through adolescence has been noted by Bühler[65] in her early developmental studies and by Ausubel[66] more recently. At age fourteen or fifteen, there should not be a definite career choice but rather a decision to continue to learn and grow. If a career decision is forced, many able adolescents, and especially the girls, settle for too little, too soon.

Not only do the possible patterns of adult life for the intellectually superior indicate a need for new guidance and career programs, but the present developmental needs also suggest special educational needs. Intellectual growth in able students probably continues longer than in any other ability level group; thus it becomes even more necessary that this group delay and broaden the base for career choices. A decision to continue learning and growing may mean focusing on an area of knowledge, it should almost certainly mean deciding to go to college, and it must mean remaining curious and open to possibilities. There is reason to believe that the longer the preparation for adulthood, the richer and more productive the individual's life will be. If this preparation is of a broad and general nature, at least through the secondary and early college years, it will contribute additional intellectual and affective strength to each individual. Under such circumstances, vocational choice takes on the form Wrenn recommends and becomes a process rather than an event, a journey rather than a destination.[67]

Besides the necessity for the guidance of able young people to free itself from the restrictive boundaries of traditional career courses, guidance courses and units, as well as education in general, must take more cognizance of the fact that students mature at different rates and that the emotional and cognitive developmental level of superior adolescents is often very different from the emotional and cognitive developmental levels of average and below average youth.[68]

The objectives suggested will not be accomplished if the student simply remains in the typical school. Without appropriate models and in constricting classroom climates there could be a lack of awareness and expectation which limits student possibilities.[69] The usual program not only limits the alternatives in the sense that few creative and scholarly patterns are presented, but it also shows a very limited, two-dimensional view of careers. The usual heterogeneous guidance class in the ninth grade emphasizes choosing an occupation from listings that are generally most suitable for average or moderately able students. The most gifted boys and girls in such a class seldom have adequate opportunity to discuss and explore high-level careers appropriate to their abilities,[70] nor are they introduced to the life patterns and value systems of outstanding people. Not only are important styles of life omitted, but reality is also lacking, since career pamphlets talk only in terms of generalizations and career films do not present "real" people. Too often we see Jane Doe, girl typist, sleepwalking through the scene in such films.

In career or vocations courses, as in many other programs, the tendency is to teach gifted youngsters what they already know and to keep them marking time. And sometimes when they themselves search for knowledge they need and do not have, they are told to wait, that it is too soon, the answers will be forthcoming in another book, another year.

Yet, superior students are often both interested in and capable of dealing with abstract ideas and philosophical concepts and are drawn toward complex patterns. For such students, it is particularly unfortunate that guidance, in Samler's terms, usually describes only Economic Man, " . . . a one-dimensional portrayal of man, who, contrary to the soundest folk wisdom, lives by bread alone . . . the skeleton, like all such structures, lacks individuality, character, and uniqueness."[71] Samler contends that the need is to balance this picture of Economic Man with a portrayal of Psychological and Sociological Man.[72] Occupational information sometimes gives the impression that the adult worker is concerned only with economic considerations (wages), training and education (where and how much), competitive considerations of training and education, and lines of advancement. This portrayal is inadequate in light of newly developed theories and research in occupational guidance which show the importance of looking at style of life and the twenty-four-hour day and not just the functional aspects of the work day. A career must be seen as the course of continued progress in the life of a person; it is an individual's self-expression and participation in society through long-term commitments. Basic to all of this is the decision to be socially responsible and concerned in one's chosen commitment. As Odegard has remarked, " . . . a sense of direction and purpose has become a matter of life and death for the human race."[73]

In many ways, the traditional career guidance approach which involves the simple description and classification of occupations--a methodological legacy from the days when trades were well-defined--has long been obsolete in terms of providing useful guidance to the gifted young person.

The course which deals with occupations--by whatever title it may be known--has too often matched job traits and student characteristics in stereotypic fashion. Guidance has had a long-standing concern for fitting the individual to the job. We need to reverse the concept. The old way may have had meaning in a less urgent past, but is, at present, sadly inappropriate in a society in which explosive change is said to be the only constant.* The old concept of talking about advantages and disadvantages of jobs, statically conceived, is of a different order than the concept of an individual creating his own role and structuring a unique life pattern. Only a dynamic and broad-gauge view of the process of career development, in a program that presents visions of the future and dynamic models after which to pattern, is consistent with today's realities . . . a present in which the whole meaning of work is changing.

To meet the needs of the able adolescent and the changing world of careers, multiple alternatives (careers) must be presented; and they should be presented in as many dimensions as possible. It is our task to enlarge the array of patterns to be viewed and to present styles of life that are consonant with the abilities and values of the intellectually able adolescent. Our adolescents must become aware of what they can do and be. They not only need to find out who they are, but also to realize that who they are is not the sole measure of what they might become. The study to be reported holds that it is not only important to understand the thoughts of students, but also to bring them into contact with the ideas and values held by outstanding men and women.

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*A basic assumption in this new course is that there are certain values, e.g., life is preferable to death, upon which human beings can reach consensus, even though there may not be agreement as to ways to teach these.

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I. SIGNIFICANCE OF THIS STUDY

A. Needs of the Superior Adolescent

1. Erich Fromm, "Values, Psychology and Human Existence," pp. 151-164, in Abraham H. Maslow (ed.), New Knowledge in Human Values (New York: Harper & Brothers, 1959), p. 159.

2. Actually there is a lack of research on all adolescents--beyond dating and delinquency. There is some survey information but there seem to be few intensive studies, particularly of intellectual and affective development and the effects of special experience. The work that has been done includes James Coleman's The Adolescent Society (New York: The Free Press of Glencoe, 1961), a study of the social life of adolescents with analysis of the social and value systems of ten widely varied high schools and their effects on teen-agers, including the special effects of early maturity and structured activities of the school. Robert Havighurst has contributed Growing Up in River City (Committee on Human Development, University of Chicago. New York: John Wiley and Sons, 1962), an intensive study of youth in a small city in Illinois, and Donald Super has done work on the career development of a cross sectional group of boys (see D. E. Super and P. L. Overstreet, The Vocational Maturity of Ninth-Grade Boys [New York: Bureau of Publications, Teachers College, Columbia University, 1960]). John Rothney has conducted a long-term program with a group of gifted young people for a number of years in Wisconsin, and Starke Hathaway (S. R. Hathaway and E. D. Monachesi, Adolescent Personality and Behavior [Minneapolis: The University of Minnesota Press, 1963]) has studied (over a period of fifteen years) personality test data and evaluations of behavior in late adolescence of thousands of boys and girls.

3. E. Paul Torrance, "Fostering Creative Thinking During the High School Years," The High School Journal, April, 1962, p. 281.

4. Aldous Huxley, Island (New York: Harper & Row, 1962), p. 208.

5. See James J. Gallagher, "Productive Thinking," Review of Child Development Research, Vol. I, 1964, pp. 349-381.

6. Huxley, op. cit., p. 244.

7. D. O. Hebb and W. R. Thompson, "The Social Significance of Animal Studies," pp. 532-561, in Gardner Lindzey (ed.), Handbook of Social Psychology, Vol. I (Cambridge, Mass.: Addison-Wesley Publishing Company, Inc., 1954).

8. Leta S. Hollingworth, Gifted Children: Their Nature and Nurture (New York: Macmillan Company, 1926).

9. As Huxley points out, a study of conservation can lead to an understanding of the Golden Rule and the insight that "We shall be permitted to live on this planet only for as long as we treat all nature with compassion and intelligence." (Huxley, op. cit.), p. 249.

10. Harold Taylor, Art and the Intellect (New York: The Museum of Modern Art, 1960), p. 11.

11. Huxley, op. cit., pp. 247-248.

12. We need to supply growth motivation or stimulation for the very able student. With reference to Maslow's distinction between the "deficiency motivated" individual and the "growth motivated" individual (Abraham Maslow, Motivation and Personality [New York: Harper Brothers, 1954]) the superior student is seen as "growth motivated"; his "lower level needs" are usually satisfied in the schools, but this does not mean that the environment and motivation is adequate. This approach to the understanding of the gifted adolescent was use in a previous study. (Elizabeth Monroe Drews, Student Abilitie Grouping Patterns, and Classroom Interaction: Final Report of the Cooperative Research Program, 608, U.S. Office of Education, "The Effect of Homogeneous and Heterogeneous Ability Grouping in Ninth Grade English Classes with Slow, Average, and Superior Students" [East Lansing, Michigan: Office of Research and Publications, Michigan State University, 1963]).

13. Benjamin Shimberg and others at the Educational Testing Service developed the ideas for such a project which had as its main purpose helping the adolescent to know himself. Martin Katz directed the project, but there are few other programs such as this available. (M. Katz, You, Today and Tomorrow, 3rd edition, [Princeton, New Jersey: Cooperative Test Division, Educational Testing Service, 1959]).

14. Aldous Huxley considered the process of realizing a full and true identity in our multiple worlds a difficult matter and states that " . . . human beings (it is hardly surprising) find themselves painfully confused, uncertain where they stand or who they really are. To provide themselves with a recognizable identity, a niche in the scheme of things, that they can call 'home' they will give assent to the unlikeliest of dogmas, conform to the most absurd and even harmful rules of thought, feeling and conduct, put on the most extravagant fancy dress and identify themselves with masks that bear almost no resemblance to the faces they cover. 'Bovarism' (as Jules de Gaultier calls it) is the urge to pretend that one is something that in fact one is not. It is an urge that manifests itself,

sometimes weakly, sometimes with overpowering strength, in all human beings, and one of the conditions of its manifestations is precisely our uncertainty about where we stand or who we are. To explore our multiple amphibiousness with a view to doing something constructive about it is a most laborious process. Our minds are congenitally lazy, and the original sin of the intellect is oversimplification. Dogmatism and bovaristic identification with a stereotype are closely related manifestations of the same kind of intellectual delinquency. 'Know Thyself' from time immemorial has been the advice of all the seers and philosophers. The self that they urge us to know is not, of course, the stylized persona with which, bovaristically, we try to become identified; it is the multiple amphibian, the inhabitant of all those incompatible worlds that we must somehow learn to make the best of." (Aldous Huxley, "Education on the Non-verbal Level," *Daedalus*, Spring, 1962, pp. 279-280).

15. An earlier study conducted in Lansing showed that almost three-fourths of the superior boys chose science and engineering as careers, and almost all superior girls chose clerical or rank-and-file social service type occupations. (See Elizabeth Monroe Drews, "A Four-Year Study of 150 Gifted Adolescents," a paper given at the annual meeting of the American Association for the Advancement of Science, Indianapolis, December, 1957).

16. In a recent study by the principal investigator, a studious individual was defined as one whose chief motivation is a drive to perform outstandingly in "school learning" as interpreted by parents and teachers. This student has a strong desire to get high marks and to measure up to the expectations of those in authority. In a sample of 400 superior high school students, almost twice as many girls as boys chose the studious type as being the most accurate self-description. (Elizabeth Monroe Drews, CREATIVE AND INTELLECTUAL STYLE IN GIFTED ADOLESCENTS;Motivatio to Learn:Attitudes, Interests, and Values, Report I in a series; Final Report of the Cooperative Research Program, E-2, U.S. Office of Education, "A Study of Non-Intellectual Factors in Superior, [Average, and Slow] High School Students [East Lansing, Michigan: Office of Research and Publications, Michigan State University, 1964]).

17. In recent conversations with Paul Heist, Research Associate at the Center for the Study of Higher Education at the University of California at Berkeley, he re-confirmed this observation.

18. *Higher Horizons*, New York City's "Higher Horizons" program, exposed deprived young people to an array of aesthetic and intellectual experiences and found not only an immediate positive response but also reported increased college attendance among the experimental group. (A. Morse,

"The Search for Hidden Talent," in Schools of Tomorrow--Today [New York: Doubleday and Co., Inc., 1960]). However, many individuals do not find such programs. An example of this was Chris, a creative and contemplative high school student, whom Jules Henry described in his book, Culture Against Man (New York: Random House, 1963), p. 250. Chris felt that the only thing he wanted in life was to learn, to search for truth, but he concluded "because I am compelled to go on in society and make money I will be hindered in these wishes."

19. Ralph H. Ojemann, "The Human Relations Program at the State University of Iowa," in Basic Approaches to Mental Health in the Schools, a reprint series from The Personnel and Guidance Journal (Washington, D.C.: American Personnel and Guidance Association), pp. 15-23.

20. Allen E. Bergin, Edward J. Murray, Charles B. Truax, and Edward J. Shoben, "The Empirical Emphasis in Psychotherapy: A Symposium," Journal of Counseling Psychology, Vol. 10, 1963, pp. 244-268.

21. Esther Lloyd-Jones and Esther M. Westervelt (eds.), Behavioral Science and Guidance: Proposals and Perspectives (New York: Bureau of Publications, Teachers College, Columbia University, 1963), p. vi.

22. Carl Rogers, On Becoming a Person (Boston: Houghton-Mifflin Company, 1961).

23. Robert F. Peck and Robert J. Havighurst, The Psychology of Character Development (New York: John Wiley & Sons, Inc., 1960).

24. J. McV. Hunt, Intelligence and Experience (New York: Ronald Press Company, 1961).

25. Robert W. White, "Motivation Reconsidered: The Concept of Competence," Psychological Review, 1959, Vol. 66, 297-333.

26. C. Gilbert Wrenn, The Counselor in a Changing World (Washington, D.C.: American Personnel and Guidance Association, 1962), p. v.

27. John W. Gardner, Self-Renewal (New York: Harper & Row, 1963).

28. Drews, op. cit. (see study referred to in Fn. 16).

29. A special conference entitled, "Guidance and the Utilization of New Media," was conducted by the American Personnel and Guidance Association (APGA) and supported by Title VII, Media Branch, United States Office of Education (USOE) in

February, 1962, Madison, Wisconsin. Experts in guidance and media explored ways to develop and use a variety of materials in the counseling setting. The proceedings of this conference have been published by the American Personnel and Guidance Association.

B. The Scientific Revolution: Its Implications for the Guidance Program of Superior Adolescents

30. In January, 1963, American Personnel and Guidance Association, in conjunction with National Aeronautics and Space Administration (NASA) and International Business Machines Corporation (IBM), arranged for a conference of scientists and guidance specialists (held at Princeton, New Jersey) to consider the matter of guiding the individual in a world continually influenced and changed by technology and innovation. A report is being prepared by APGA on this conference.

31. Norman Cousins, "Life Inside the Centrifuge," Saturday Review, August 29, 1964, pp. 60-61.

32. See Arthur E. Traxler (editor), Keeping Abreast of the Revolution in Education (Washington, D.C.: American Council on Education, 1963). As Executive Director of the Educational Records Bureau (ERB), Dr. Traxler has concerned himself with helping the schools to make use of the best current research and knowledge. Each year, ERB sponsors a conference for educational leaders, devoted to such topics.

33. The earliest activity in the curriculum reforms in mathematics and the sciences was in the area of mathematics. Extensive work was done at the University of Illinois under Max Beberman and David Page. However, the major mathematics program has been that of the School Mathematics Study Group (SMSG) supported by the National Science Foundation and centering its activities first at Yale University and now at Stanford.

34. The Physical Science Study Committee (PSSC) was supported by the Ford Foundation, the National Science Foundation, and others. It began as an effort to integrate chemistry and physics at the high school level. However, this failed and the PSSC has since devoted its efforts to physics.

35. The Biological Sciences Curriculum Study (BSCS) was formed by the American Institute of Biological Sciences and has made extensive changes in curriculum. Support also came from the National Science Foundation.

36. The Chemical Education Materials Study (CHEMS) is now working toward the completion of new materials for the teaching of chemistry.

37. Humanities. In a recent article Frances Keppel (Commissioner of Education, U.S. Department of Health, Education, and Welfare), "Encouraging Legislation in the Arts," (Higher Education, March, 1964, pp. 3, 4, 20, 21), comments that in 1962 the U.S. Office of Education established a Cultural Affairs Branch to develop programs and activities that will extend and improve education in the arts at all levels. An example of the kind of activity encouraged by this division was a seminar on music education held at Yale University, June, 1963, which brought together musicians and teachers to consider ways of narrowing the gap between contemporary music knowledge and educational practices and improving music education in elementary and secondary schools. In the spring of 1964 the USOE activated a Division of Educational Research which included an Arts and Humanities Branch which supercedes the Cultural Affairs Branch.

English and Social Studies. The USOE under U.S. Commissioner of Education, Sterling McMurrin, asked for and received congressional authorization for Project English late in 1961. Somewhat later Project Social Studies was authorized. Both are now functioning under the Curriculum Development Branch of the Division of Educational Research, USOE. Several centers for each program throughout the country have been approved.

General Curriculum. In addition to the USOE's Curriculum Development Branch, the National Education Association (NEA) has sponsored several projects concerned with curriculum change. The NEA Project on Instruction, directed by Ole Sand, now has seven publications focusing on ways of improving instruction in the schools. The NEA Project on the Academically Talented Student, which was directed by Charles Bish, has developed publications in English, social studies, modern foreign languages, music, art, science and mathematics. Excellent critical evaluations of curriculum change can be found in two books by John I. Goodlad: Using Current Curriculum Developments, NEA, May, 1963; and School Curriculum Reform in the United States, The Fund for the Advancement of Education, March, 1964.

38. Jerome Bruner, The Process of Education (Boston: Harvard University Press, 1960).

39. Donald E. Super, Reuban Starishevski, Norman Matlin, and Jean Pierre Jordaan, Career Development: Self-Concept Theory (New York: College Examination Board, 1963). Also see David V. Tiedeman and Robert P. O'Hara, Career Development: Choice and Adjustment (New York: College Examination Board, 1963).

40. Lawrence A. Cremin, "The Progressive Heritage of the Guidance Movement," Harvard Graduate School of Education Association bulletin, Vol. VIII, No. 4 Winter, 1964 , pp. 1-5, 10.

41. Cremin, ibid., and Shoben (Edward Joseph Shoben, Jr., "Guidance: Remedial Function or Social Reconstruction?" Harvard Educational Review, Vol. XXXII, No. 4, Fall, 1962, pp. 430-433), have agreed that counselors must be trained in broadly humanistic terms in order to be able to give adolescents assistance, not in the remedial sense or in the sense of helping them to choose careers, but in contemplating and choosing patterns of life.

42. Carl R. Rogers states that as a result of the third force--the phenomenological-existential trend--psychology will be capable of focusing on a broader reality which recognizes that we cannot eliminate our human perspective from our picture of the world. (C. R. Rogers, "Toward a Science of the Person," Journal of Humanistic Psychology, Fall, 1963, pp. 72-92.) Donald Super applies some of these new psychological dimensions to career guidance in his definition: "Vocational guidance is the process of helping a person to develop and accept an integrated and adequate concept of himself and of his role in the world of work, to test this concept against reality, and to convert it into a reality, with satisfaction to himself and benefit to society." (D. E. Super, The Psychology of Careers, New York: Harper and Brothers, 1957.)

43. Shoben, Harvard Educational Review, op. cit.

44. Lloyd-Jones and Westervelt, op. cit., p. vi.

45. Even in the one-to-one relationship there is an opportunity for a student to explore his own emerging identity; yet this is often not seen as the task of the counselor. Shoben (Harvard Educational Review, op. cit.) sketches in counselor tasks as follows, " . . . counselor of the obstreperous, the advisor on college selection and vocational matters, and the purveyor of tests and occupational information."

46. Albert Camus, Resistance, Rebellion, and Death (New York: Alfred A. Knopf, 1961), p. 27.

C. Learning to Think: The Process of Learning as It Relates to the Education and Guidance of Superior Students

47. René Dubos, The Torch of Life (New York: Simon and Schuster, A Trident Press Book, 1962).

48. Robert S. Morison, "New Types of Excellence," Daedalus, Fall, 1961, pp. 764-781.

49. Lee J. Cronbach, "Psychological Issues Pertinent to Recent American Curriculum Reforms," (Paper delivered as part of a symposium on "Motivation, Learning, and Teaching," XIV, International Congress of Applied Psychologists, 1961).

50. B. O. Smith, Mary Jane Aschner, and M. Meux, The Logical Structure of Teaching and the Development of Critical Thinking. (Progress report, U.S. Office of Education Research Project No. 258, 7257, University of Illinois, 1959).

51. In his chapter entitled, "Total Planning for Personal Integrity," Ward discusses the possibility of a synthesis of values which could become a "workable theory of life," and suggests that such an educational approach is particularly appropriate for the gifted. (Virgil S. Ward, Educating the Gifted, an Axiomatic Approach [Columbus, Ohio: Charles E. Merrill Books, Inc., 1961]).

D. Beyond Cognition: Non-Verbal Learning as It Relates to the Education and Guidance of Superior Students

52. Anne Roe, The Making of a Scientist (New York: Dodd, Mead and Co., Apollo Editions, 1955), pp. 232-233.

53. Erik H. Erikson, "Youth: Fidelity and Diversity," Daedalus, Winter, 1962, pp. 5-27. Erikson suggests that some young people may feel that contributions to a world brotherhood may be more socially useful than their own technical competencies.

54. Denis Gabor, Inventing the Future (New York: Alfred A. Knopf, 1964), p. 168.

55. Catherine Drinker Bowen, "A Quarter Century: Its Human Triumphs," Look, Dec. 5, 1961.

56. Murphy Gardner, Freeing Intelligence Through Teaching (New York: Harper and Brothers, 1961).

57. Alfred North Whitehead, Science and the Modern World (New York: Mentor Books, 1949), pp. 177-178.

E. A Summary: The Needs of the Superior Adolescent as Related to Career Study

58. Nevitt Sanford, Director, Institute for the Study of Human Problems, comments, "Role requirements are changing rapidly in the whole career field. Jobs for which one prepares in college disappear almost as soon as one graduates." (Sanford, "Education for Individual Development," Conference of Directors of College and University Counseling, University of Nebraska, October 29-30, 1962; The University of Nebraska, mimeographed; this report is not generally available.) The Rockefeller Report on Education, The Pursuit of Excellence, Education and the Future of America (New York: Doubleday and Co., Inc., 1959) also comments on the changing nature of careers.

59. E. C. Hughes, in Men and Their Work (Glencoe, Illinois: The Free Press, 1958), takes a sociological view of careers and particularly how each is affected by the individual and his style of living.

60. Lawrence F. Shaffer and E. Joseph Shoben, Jr., The Psychology of Adjustment (Boston: Houghton-Mifflin Co., 1956), comment, "The aims of education and of mental hygiene are basically the same, namely, the development of persons who can live effective and satisfying lives in society." p. 552.

61. Joseph Samler, "Occupational Exploration in Counseling: A Proposed Reorientation," in Henry Borrow (ed.), Man in a World at Work (Boston: Houghton Mifflin Co., 1964), pp. 411-434.

62. Morison, op. cit.

63. Robert Lindner, Must You Conform (New York: Grove Press, Inc., 1956, First Black Cat Edition, 1961), p. 202.

64. Robert J. Havighurst, "Youth in Exploration and Man Emergent," See Borrow (ed.), op. cit., pp. 232-233.

65. Charlotte Bühler, From Birth to Maturity (London: Kegan and Paul, 1935).

66. David P. Ausubel, Theory and Problems of Adolescent Development (New York: Grune and Stratton, Inc., 1954).

67. Wrenn, op. cit.

68. This point has been discussed and elaborated upon by the principal investigator in another study. See Drews, fn. 12, Cooperative Research Project No. 608.

69. Life patterns and value systems are not considered in the typical vocational course. Reality is lacking in the prepared materials, since there is a tendency to make broad generalizations; and neither career pamphlets nor films present "real people." (Elizabeth Monroe Drews and Douglas Knowlton, "The Career Film Comes to Life," Audio-visual Instruction, Vol. 8, No. 1, January, 1963, pp. 29-32).

70. The statement "to discuss and explore high level careers" should be interpreted as follows: "to discuss" involves a review of an area of knowledge in relation to other disciplines, and "high level" careers refers to those whose development has involved social and moral responsibilities, and "career" is taken to mean a "style of life" rather than an "eight to five" job. (Drews and Knowlton, ibid.)

71. Joseph Samler, "Psycho-Social Aspects of Work: A Critique of Occupational Information," Personnel and Guidance Journal, 1961, 39, 6, 458-465.

72. Ibid.

73. Peter H. Odegard, "The Social Sciences and Society," The Educational Record, Spring, 1964, p. 197.

II. RATIONALE FOR SELECTION OF PROTOTYPE-MODEL

We have come to see the search for identity as a crucial experience for the young person. In the foregoing section, we hope we have persuasively stated the need for a new approach to guidance and education, for the formulation of a new kind of program, and the training of a new kind of school personnel. In this chapter we will consider the proposition that young people can, by studying the prototype-model, bring additional meaning into their lives and find through these models patterns for self-discovery.

Self-discovery is, at least in part, a philosophical pursuit. The beginnings of self-discovery and the awareness of what he might become and of ways to bring meaning to the world will combine to give each young person a surer sense of his own individuality. All of this can be considered a quest for a philosophy of life or, in the most inclusive sense, philosophy itself. We are in agreement with Susanne Langer's definition of philosophy as the " . . . process of making sense out of experience, rather than adding to experience. . . ."[1]

Education which will provide for such self-discovery will be a more constructive influence than programs which have focused primarily on intellectual learning and which have made no effort to help the student in the pursuit of meanings. Education must help the student fit areas of knowledge together and see how he, as an individual, can relate to all that is about him. As Gardner has observed, man has always " . . . shown a compelling need to arrive at conceptions of the universe in terms of which he could regard his own life as meaningful."[2]

Clearly, then, there is a need for each student to develop in ways that enhance his concept of self and give him dignity. But a sense of individuality is not enough. Beyond guiding students toward self-discovery and finding universal meanings, we feel that education must make it eminently clear to each young person that he must be concerned with larger objectives and employ his intelligence wisely. Wise employment means a concern with human problems--his own and those of his society. Such a sense of service and of duty need not destroy individuality or freedom. In fact, probably the best way to find oneself is to give oneself in the service of larger purposes. Such giving may prevent an ashes-in-mouth autonomy which can, as Gardner points out, lead to alienation and egocentrism. The need is clear, but again we must agree with Gardner when he says, "Unfortunately we have virtually no tradition of helping the individual achieve such commitment."[3]

Although there is a serious lack of educational tradition which helps the young person discover himself and achieve such commitment, it is the thesis of this study that there are ways that this can be done. The very fact that certain human beings can be identified as prototypes or models suggests a potential resource which could be used in curriculum revision.

There are certain qualities that the most mature human beings--the great contributors in all endeavors--possess. Although knowledge is ever-new and ever-changing, elements of greatness in the human species have a certain universality and timelessness which, if made meaningful to youth, could then be translated by the young person into a more personal frame of reference. However, the elements of greatness with which we are concerned in these prototypic human beings are beyond those that are usually associated with creative productiveness; they are elements of human greatness rather than simply greatness in terms of ability, talent, or skill. The primary focus for such individuals is human rather than political or scientific. These remarkable individuals do more than become famous by reason of outstanding ability in conducting wars or inventing new machines; they are the individuals, often neglected by political-economic history textbooks, who have had great and lasting impact for good--who have changed the very destiny of man. These are the greats of whom Sorokin is speaking in his studies of altruistic love:

> If we ask ourselves what sort of individuals have been most influential in human history, the answer is such individuals as Lao-tze, Confucius, Moses, Gautama Buddha, Mahavira, Jesus, St. Paul, St. Francis of Assisi, Mahatma Gandhi and other founders of great religions, discoverers of eternal moral principles, and living incarnations of sublime, unselfish love. In contrast to the short-lived and mainly destructive influence of autocratic monarchs, military conquerors, revolutionary dictators, potentates of wealth, and other historical persons, these great apostles of spirituality and love have most tangibly affected the lives, minds, and bodies of untold millions, of many generations, during millennia of human history; and they are tangibly influencing us at the present time. They had neither army and arms nor physical force nor wealth nor any of the worldly means of influencing the historical destinies of nations. Nor, to obtain their power, did they appeal to hate, envy, greed, and other lusts of human beings. Even their physical organism was not of the strongest kind. And yet, together with a handful of their followers, they morally transformed millions of men and women, reshaped cultures and social institutions, and conditioned the course of history. They did all this by the mere power of their sublime, pure, and overabundant love, by their unselfish spirituality and supreme wisdom.[4]

Each of these individuals was "master of his times," but also belonged to all times; he was a citizen of a community and a state, but also a contributor to the world order. Distinguished by his wisdom and compassion, he was aware of the inner needs of man and of the importance of achieving a rapprochement with other aspects of life--with his fellow man and with nature. All saw that life had basic unities that must be understood and interpreted. In understanding the essential humanness and greatness of such men and women, it is desirable that students realize that these models also represent a common human destiny. Young people must recognize that both they and such adults share feelings, hopes, and thoughts with all of mankind. There is no longer a place for tribalism, parochialism, or even narrow nationalism in today's world.

In the world of today there is a great need for self-actualized individuals, both because society requires their contributions and as models for other human beings. Whitehead, in considering the problem, asserted, "We must produce a great age, or see the collapse of the upward striving of our race."[5] Similarly, Gardner reflects, " . . . never in our history have we stood in such desperate need of men and women of intelligence, imagination and courage. The challenge is there--greater than any generation has ever faced."[6] And it is from such good men and women that society might garner strength. However, this cannot happen unless an effort is made since a good individual whose virtues and good works are unknown will, by definition, be ineffectual. In Gardner's discussion of excellence he acknowledges that an open concern with good people may be an unpopular one; he recognizes it is unsophisticated to say that good men make a difference (or to care if they do). Yet, he continues, "Men of integrity, by their very existence, rekindle the belief that as a people we can live above the level of moral squalor."[7]

Since the aim of this study is to encourage full development of intellectual and ethical growth in each student, it is essential that we present examples of man at his best to our young people. More explicitly, our goal parallels the aims expressed by Gardner:

> Learning for learning's sake isn't enough. Thieves learn cunning, and slaves learn submissiveness. We may learn things that constrict our vision and warp our judgment. We wish to foster fulfillment within the framework of rational and moral strivings which have characterized man at his best.[8]

The historian Commager also stresses the need for such models--he would call them heroes:

> At a time when narrative history has given way to 'problems' and when the celebration of heroes is regarded as a vestigial remnant of Victorianism or a subtle attack upon the behavioral sciences, it is relevant to observe that if we deny young people the wonder and excitement of historical narration and of heroes, we cannot expect them to respond passionately to the moral crises of our own time.[9] (emphasis ours)

Studies of role identification as well as our historical chronicles show that certain people with exemplary qualities are influential and that those models who approach greatness carry great impact. In at least one clinical study it has been shown that clients tend to adopt the value systems of their counselors.[10] These findings are supported by the theory advanced by French and Kahn[11] of models as a source of referent power (based on attraction and identification) and of expert power (based on "rights" culturally determined and accepted by the person influenced), and lead us to speculate that certain students--especially those who already have a strong creative and intellectual orientation--will change to a more positive self-evaluation and increase in qualities exemplified by creative people, as well as become more tolerant and accepting of creative persons and attitudes, when presented with models of intellectual and ethical excellence.

Finding models to use in such an educational program will be a problem, but not an insuperable one. Although such prototypic and ideal individuals are not readily identifiable and probably only occur rarely in the normal course of events, they can be found if a search is begun. Maslow, after a careful search, discovered a number in his early work on self-actualization. And there is reason to believe that in the future there will be an increasing proportion of individuals who far surpass most of today's outstanding men and women, both in terms of moral sensitivity and intellectual strength.[12]

Although we do not know how such development can be fostered, the very images of man which we hold may be important. Maslow feels that these are undergoing change. He observes that,

> We are now in the middle of . . . a change in the conception of man's capacities, potentialities and goals. A new vision is emerging of the possibilities of man and of his destiny, and its implications are many, not only for our conceptions of education, but also for science, politics, literature, economics, religion, and even our conceptions of the non-human world.[13]

Thus it becomes important that we select and make visible models who will give tone and direction to our society but also that we make clear these emerging possibilities of man.

Such models and patterns of thought present the optimistic view. But, as Gardner says, " . . . democracy requires a certain optimism concerning mankind."[14] And it must be transparently clear to anyone who is familiar with current fiction and drama that the leaven of pessimism is abundant. Krutch feels that many who express themselves creatively are "alienated"--from their nation, from the human race, and often from the universe itself. He continues:

> Never, with the possible exception of the world of the Roman Empire, has so large a part of the best artistic creation been bitter, despairing, contemptuous, and destructive. With rare exceptions, the works most, and most justly, admired by intellectuals are counsels of despair. We produce parodies, denunciations, and nightmares. On the whole, our best artists are engaged in disrupting patterns, smashing forms, and deliberately cultivating dissonances in painting and music, as well as in poetry, fiction, and drama.[15]

The argument can be persuasively made that such writers who document man in the full misery of his disenchanted and alienated state are protesting that there is a better and more human way of conducting affairs. However, we would be naive to attach such a nobility of purpose to the motives that underlie mass media presentations. Henry describes in rich detail the efforts of advertising and commercial interests to support and foster rather than question current teenage values that are primarily conforming, status-oriented, and hedonistic.[16] In a section which he titles "Tight-Pants Teen-Town" Henry describes the Id-Leadership and Id-Fun which are exploited by Ad men in the interests of the GNP. It is such an artificial and anomic culture that Henry sees it offering little to our thoughtful and idealistic young people who have no recourse but estrangement.[17] The discerning reader is fully aware that "uncommitted" media releases do not balance the picture. News stories tend to feature the trivial or the criminal rather than idealism--self-directed and sometimes triumphant. And television offers endless images of people who have no commitment, and of heroes who lack heroism. Although many movie stars whose names are common currency seem to lead la dolce vita, the question must be asked as to whether this is the "good life" and if such men and women will help us produce the "great society."

It is popular to deplore the situation and to blame both Madison Avenue and our child-centered, teen-tyrannized culture but there have been few efforts by civic leaders and educators to instigate change. We seldom try to bring before our young people more noble and effective styles of life. If such models were more visible, adolescents might come to recognize advanced levels of development and idealistic value systems as highly desirable. These patterns could then be taken as a basis for judging other (and more common) value systems and patterns of life. As Maslow has noted, "type specimens" are rare but they are also the exemplar for the whole species.[18] They can suggest an uncommon but desirable way for adolescents to grow--movement toward greater openness to experience, increasing valuation of intellectual endeavors and more human concern, and thus develop a greater awareness of these qualities in themselves through perceiving them in others.

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II. RATIONALE FOR SELECTION OF PROTOTYPE-MODEL

1. Susanne K. Langer, "The Growing Center of Knowledge," in Philosophical Sketches (New York: A Mentor Book, May, 1964), pp. 123-153.

2. John W. Gardner, (a psychologist and president of a philanthropic foundation, The Carnegie Corporation, in) Self-Renewal (New York: Harper and Row, 1963), p. 102.

3. Ibid., p. 94.

4. Pitirim A. Sorokin, "The Powers of Creative Unselfish Love," Abraham H. Maslow (ed.), New Knowledge in Human Values (New York: Harper and Brothers, 1959), pp. 10-11.

5. Alfred N. Whitehead, Preface to Wallace B. Donham, Business Adrift (New York: Whittlesly House, McGraw-Hill Book Co., Inc., 1931).

6. John W. Gardner, Excellence (New York: Harper and Brothers, 1961), p. 153.

7. Ibid., pp. 153-154.

8. Ibid., p. 136.

9. Henry S. Commager, "Leadership in Eighteenth Century America and Today," Daedalus, Fall, 1961, pp. 252-273.

10. David Rosenthal, "Changes in Some Moral Values Following Psychotherapy," Journal of Consulting Psychology, 1956, 19, 431-436.

11. See John French and Robert Kahn, "A Programmatic Approach to Studying the Industrial Environment and Mental Health," Journal of Social Issues, Vol. XVIII, No. 3 (July, 1962), pp. 1-47.

12. John Radar Platt, a University of Chicago biologist, suggests that due to new patterns of marriage (PhDs marrying PhDs), "The number of 180's [IQs] getting out of college in the next few years may not be a mere dozen, but hundreds. It could be an explosion of genius such as the world has never seen." (p. 74) Similarly, Dennis Gabor, a University of London physicist, quotes Bertrand Russell as saying, "There is no reason why in the ages to come the sort of man who is now exceptional should not become usual, and if that were to happen, the exceptional man in the new world would rise as far above Shakespeare as Shakespeare now rises above the common man." (J. Platt, "The Coming Generation of Genius," Horizon, Vol. IV, No. 4 (March, 1962), pp. 70-76; and D. Gabor, Inventing the Future (New York: Alfred A. Knopf, 1964), pp. 198-199).

13. Abraham H. Maslow, Toward a Psychology of Being (New York: D. Van Nostrand Co., Inc., An Insight Book, 1962), p. 177.

14. Gardner, Excellence, op. cit., p. 154.

15. Joseph Wood Krutch, "The Creative Dilemma," Saturday Review, February 8, 1964, p. 17.

16. There seems to be little doubt but that this propaganda has had its effect. Social philosophers such as Henry, Jacobs, and Riesman have noted that our teenagers tend to be conforming, materialistic and hedonistic. (Jules Henry, Culture Against Man [New York: Random House, Inc., 1963], Phillip E. Jacob, Changing Values in College [New York: Harper and Brothers, 1957], David Riesman, Abundance for What? [New York: Doubleday and Co., 1964].)

17. Henry, op. cit.

18. Maslow suggests that we must be like the " . . . taxonomist [who] chooses for his 'type specimen' of a new species, the one to be deposited in a museum, to be the exemplar for the whole species, the best specimen he can get, the most mature, the most uncrippled, the most typical of all the qualities that define the species." (Maslow, op. cit., p. 161).

III. PSYCHOLOGICAL THEORY AND RESEARCH RELATED TO THE CREATIVE ADULT

In the preceding section we have seen that there are two vital aspects in each adolescent's growth toward self-actualization and personal maturity. The young person must be simultaneously concerned with self-discovery and with finding a place for himself in the party of humanity. As Fromm has said, "The mentally healthy person is the productive and unalienated person . . . who experiences himself as a unique individual entity, and at the same time feels one with his fellow man. . . . "[1] The psychological states in which this kind of maturation occur have been termed "Being and Becoming." Maslow considers the Being-psychology to be very different from the Becoming-psychology and yet holds that both are part of the unity of development. States of absolute Being which he calls peak-experiences are described as

> . . . absolute delights, perfect in themselves, and needing no more than themselves to validate life. [He continues] . . . the process of moment to moment growth is itself intrinsically rewarding and delightful in an absolute sense. If they are not mountain peak-experiences, at least they are foothill-experiences, little glimpses of absolute, self-validative delights, little moments of Being. [The growth itself and the sense of direction is seen as the process of Becoming] . . . human beings strive perpetually toward ultimate humanness, which itself is anyway a different kind of Becoming and growing. . . . Being and Becoming are not contradictory or mutually exclusive.[2]

It is, then, with such an ideal in mind that we begin to think about practical applications. How often do adults approach self-actualization? What outer forces and factors combine in producing a responsive environment for such a developmental pattern? We recognize that in a world of modern science and fading national boundaries the old metaphors and models may not apply; but it is our belief that certain individuals have found meaning in their lives and that in various ways these meanings or structures can be communicated to the student. If students are to avoid feelings of fatalism and powerlessness, they must find a philosophy to live by and cognitive structures to increase their sense of control over destiny.

For all of us--the able adolescent who is discovering himself and the world, the school psychologist who is fashioning a better education, and the philosopher who is trying to give coherence to it all, the concept of meaning is a dominant issue. Hobbs feels that every individual must have a cognitive house to live in to protect himself from the incomprehensibilities of existence as well as to provide some architecture for daily experiencing. In terms of the gifted adolescent this means that each one, as Hobbs says, " . . . must adopt or invent a private cosmology."[3] We are enough affected by the spirit of existentialism to recognize that such understandings are and must be essentially personal and self-determined, that a person's cosmology must suit him. But we also realize that these cognitive structures are greatly influenced by the immediate culture--current literature, mass media, range of experience, and the people within one's range of experience. Thus prototypic adults and excerpts from the best of human dialogue can give young people an enlarged and more idealistic vision of human potentialities. When the most evocative materials* to which young people are exposed seem instead to feature irrationalism, pessimism, defeatism, and hedonism, it is clear that steps must be taken to produce changes in the educational environment. It is foolish and wasteful for the gifted adolescent to attempt to make his major views of self and world congruent with such limited models and conceptions.

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*Textbooks are seen as bland and non-influential; people rarely read them of their own accord.

It would seem that if a somewhat standard definition of psychology is to be accepted, that is, that psychology is a branch of science dealing with the _mind_, the _self_, and the _person_ and with the _acts_, _behaviors_, and _mental processes_ of the person[4]--then it might be assumed that a primary concern of the psychologist should be the optimum development of that person. If we can assume, further, that education is also concerned with the optimum development of the person, then we might say that a major interest of the psychologist should be the education of the person and his behaviors, his acts, and his _mental processes_. Rather ironically, however, the field of psychology has contributed only in limited ways to developing constructive patterns of education. In fact, psychologists have been remarkably unconcerned with the total process of education and, thus, have done little to compensate for the blandishments of mass media and the banalities of textbooks.

It is true that the formal discipline of psychology has, in various forms, become a part of "teacher preparation"; however, the psychologist's interest in the _person_ has been either in generalities about people or in their abnormal states. Psychological research has concentrated on rats in mazes and college sophomores _en masse_, and not until recently has there been an effort to study lives* and the complexity of productive human thought.** Psychotherapy, a practice which--if effective--is educational, has been (perhaps due to the deficiency-motivation of those who seek help) principally a remedial or corrective function rather than a venture in self-actualization. Thus, we might say that psychology, when it has attempted to

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*Henry A. Murray, _The Study of Lives_ (New York: Atherton Press, 1964).

**James J. Gallagher, "Productive Thinking," _Review of Child Development Research_, Vol. I, 1964, pp. 349-381.

"educate," has chosen to work on the dark side of the moon. The mentally healthy, supernormal, and all that can be called self-actualizing have been neglected. Psychology has been passive, if not inert about studying healthy growth and self-actualizing tendencies and suggesting forms of cultural intervention that would foster such development.

In the last decade, however, various groups of psychologists have begun to coalesce into the "third force."[5] Their concern has been with Being and Becoming and the ways that these patterns of optimum development focus on and help each individual to find purpose and meaning in his life as well as a role in the universe. As Maslow has stated in his preface to New Knowledge in Human Values, " . . . the ultimate disease of our time is valuelessness . . . [But] . . . something can be done about it by man's own rational efforts."[6]

Concurrent with these philosophies and developments in psychology, there is a new trend in research which also looks at human beings more positively. Definitions of learning have been broadened and the view that education encompasses not only intellectual attainment, but also emotional and social development as a desirable end in itself, has become more widely accepted. Academic psychologists have made advancements in developing personality theory, particularly as this relates to constructive growth. In 1950 Guilford stimulated interest in the study of creativity with the publication of an article in the American Psychologist entitled "Creativity."[7] Soon afterwards Maslow published his description of self-actualizing adults in his book, Motivation and Personality,[8] and at about the same time MacKinnon began a series of assessment studies of creative and productive adults at the Institute for Personality Assessment and Research at Berkeley.[9]

In the remainder of this section the plan is to examine some of these more recent contributions of psychologists, particularly the studies on creative adults, with an attempt to discover how these researches might contribute to the understanding of and educational planning for superior adolescents. What insights can we glean from the research on outstanding adults which will help us understand the patterns of motivation, attitudes and interests in able adolescents? What can we infer from the development of these adults that will help us to fashion more appropriate and stimulating school programs?

At the outset of this review, it must be clearly understood that any insights which we claim must be regarded as tentative ones. We do not know how many of the inferences we draw from the adult assessment studies can be applied to the young for a number of reasons. These studies of creative adults are retrospective, and memory at best is partial and more or less distorted. Another matter that makes prediction of the behavior of the young from "facts" about their elders difficult is that the Weltanschauung is changing rapidly. Bettleheim includes this in his discussion of "the problem of generations."[10] Finally, and perhaps most importantly, is a fact which we have already noted, i.e., that there has been relatively little research done on the creative adult. Many questions have not been asked in the ongoing studies and the answers to formulated questions are still far from complete. Further, the samples of creative adults studied represent only a very small proportion of all who might be chosen as creative. For example, a large number of studies have concentrated on scientists, and most of the original and effective individuals selected for such studies have been men. There have been few studies of the socially creative and of those with a humanitarian bent beyond Maslow's description of self-actualizing adults and little research has concerned itself with creative women. In spite of these admitted deficiencies in the research dealing with creative adults, it does serve as a valuable frame of reference which those who are concerned with creativity in adolescence can use as a guide.

For example, Roe[11] and Eiduson[12] have done careful psychological studies on the background and the personality characteristics of male scientists which offer excellent guides for the study of youth. Perhaps even more pertinent are the extensive studies of MacKinnon, et al. at the Institute for Personality Assessment and Research (IPAR)* which have included not only research scientists, but also creative writers, mathematicians, graduate students, medical students, architects, and military officers and personnel.[13] Although here, too, the bulk of research is being done with men, women mathematicians were also studied.[14] In contrast to studies of adult creatives, McConnell, Heist, and others at the Center for the Study of Higher Education* have been studying both sexes in about equal numbers at college level to determine creative and scholarly predispositions as well as to examine the students' value systems.[15]

In a review of these studies, it becomes clear that there are certain qualities that are quite consistently found in creative adults. One observation made in a number of the studies concerned with productive and recognized adults is that these individuals who produce in ways that are highly valued by their societies are also gifted intellectually.[16] Another finding has been that the highly creative individual is also apt to be psychologically healthy. In other words, he is seen as developing in optimum ways, especially in the direction of maturity and self-actualization. The terms used by "third force" or growth psychologists to describe psychological maturity--such as openness to new experience, intellectual orientation, and autonomy--are synonymous with the descriptive terms of the researchers and theorists concerned with creativity. This emphasis on the positive relationship between creativity and mental health is in direct contrast to the idea that genius is related to instability or even insanity, an idea that has been well entrenched in the popular mind and which was encouraged by such early writers as Lange-Eichbaum[17] and Lombroso.[18] However, Barron reports that many highly creative individuals do have qualities, such as willfulness or high impulse expression or seemingly disordered ways of living, which are in contrast to the usual smooth functioning that has been termed good adjustment. But in the case of these highly creative people, their "maladjustments" do not become debilitating. It is not that they do not have "problems"--they do; they seem to be able not only to cope with them, but perhaps even to benefit from them. Barron has commented that the highly creative people in his study are, in fact, "crazier and saner" than the average person.[19] However, it must be remembered that, despite the excellent quality of the research done so far and the interesting nature of the insights, the picture of the creative style and of creative performance is incomplete. As was noted earlier, most of the studies have concentrated on male subjects.

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*Both centers are located at the University of California in Berkeley.

**See reference 5 on Allport, Fromm, Jahoda, Maslow, and Rogers.

Fortunately in at least two ongoing investigations, many of the findings which are still unpublished, there is a more inclusive population sample studied and a broader definition of creativity. For example, the IPAR studies have been concerned with aesthetic qualities, sensitivity, and intuitive awareness as well as with more achievement-oriented and self-assertive behavior, and have found that the men chosen as highly creative by their peers are apt to test high on aesthetic scales, on intuitive thinking, and on social introversion. However, they are also independent and aggressive. The women mathematicians retained feminine qualities but also had demonstrated excellence in ways usually held to be masculine.

It may be that people of moderate creativity take a more conventional sex role than is the case with the highly creative individual. It is suggested that moderately creative men may choose to work in ways or in areas that are considered masculine and therefore fit into prevailing sex role stereotypes. For example, they might be able to express themselves in original ways and show a high level of intellectual excellence in technology or science, but not venture to break with convention by being creative in intuitive ways, in aesthetic expressions, or in any way that might be termed feminine.*

It is not difficult to understand why men do not express themselves in these more "feminine" ways. In America there is a lack of understanding and acceptance in all strata of society of the more feminine perceptions--openness, receptiveness, awareness. This deficit directly relates to a noteworthy lacuna in psychological knowledge, particularly the lack of a psychology of women and of knowledge of creativity in women. As a result, the conclusions as to how the moderately creative woman differs from the moderately creative man must be largely inferential at this point. But descriptions of these women show them to be aesthetically oriented and intuitive in their thinking, and different also from the moderately creative men in their capacity for experiencing and being. It seems reasonable to conclude that in our society most men and women manifest creativity differently, except for the highly creative where the usual sex differences no longer hold; and that the creative predispositions and processes of women are neither understood as well nor honored as much as the innovations produced by men.[20]

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*It seems unfortunate that cultural stereotypes have developed which label certain attitudes as masculine and others as feminine. To be fully human an individual needs to be both, simultaneously.

In reviewing the range of studies in creativity it becomes apparent that practically none has included the dimension of social creativity--humane and altruistic attitudes and behaviors. This is a dimension which we expect to find in the creative expressions of women but which has not been carefully explored for either sex. On the contrary, psychological reports emphasize other matters. There is considerable evidence that social conscience and other more feminine qualities are considered relatively unimportant in an aggressive, achieving society.[21] There seems to be no doubt that women are more humane and altruistic.* Men--including some of the outstanding scientists--are perhaps less concerned about human relations and are not apt to be greatly concerned in their work with the welfare of humanity. However, Roe indicates that the situation must change: " . . . scientists are now being forced to consider the social repercussions of their work."[22] Thus even such highly creative and nationally recognized men lack some of the qualities of the prototype-ideal. Florence Rockwood Kluckhohn points out:

> Man's occupational role is an action-oriented one which expresses well the doing orientation, while in woman's role it is expected that much more attention will be given to all those things--intellectual, aesthetic, and moral which busy men so often define as the nice, non-essential embroidery of American life.[22]

However, it is held in this study that the most highly developed individual has this attribute of humane concern and other qualities which have been typically denoted feminine as well as the more masculine traits of independence and achievement drive. At this highest level of development creative men and women have much in common. Both show a wide range of values and capabilities which encompass masculine and feminine characteristics. And with a few, this extends beyond self-expression to a genuine social concern. The concept of the self-actualizing and fully-functioning adult embraces these ideas. This self-actualized individual has been seen by Maslow as relatively rare and as having an unusual and complex personality. As Maslow says,

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*Seemingly on both the person-to-person level and in matters such as peace that affect all of society. The studies of Allport and others have shown this conclusively.

> In these healthy people we find duty and pleasure to be the same thing, as are also work and play, self-interest and altruism, individualism and selfishness. We know that they are that way, but not how they get that way.[24]

The review of research describing able adolescents that follows presents an effort we have made to find out more about the creative disposition and style in the high school years.

III. PSYCHOLOGICAL THEORY AND RESEARCH RELATED TO THE CREATIVE ADULT

1. Erich Fromm, The Sane Society (New York: Rinehart, 1955), p. 275.

2. Abraham H. Maslow, "Psychological Data and Value Theory," in Maslow (ed.), New Knowledge in Human Values (New York: Harper & Brothers, 1959), pp. 124-125.

3. Nicholas Hobbs, "Sources of Gain in Psychotherapy," American Psychologist, Nov., 1962, p. 746.

4. Horace B. English and Ava C. English, A Comprehensive Dictionary of Psychological and Psychoanalytical Terms (New York: Longmans, Green & Co., 1958).

5. See Gordon Allport, Becoming (Yale University Press, 1955); Erich Fromm, The Art of Loving (George Allen and Unwin, Ltd., 1957); Marie Jahoda, Correct Concepts of Positive Mental Health (Basic Books, Inc., 1958); Abraham Maslow, Toward a Psychology of Being (D. Van Nostrand Co., Inc., 1962; Carl Rogers, On Becoming a Person (Houghton-Mifflin Co., 1961).

6. Abraham Maslow, op. cit., p. vii.

7. J. P. Guilford, "Creativity," The American Psychologist, Vol. V, No. 9 (September, 1950), pp. 444-454.

8. Abraham Maslow, Motivation and Personality (New York: Harper & Brothers, 1954).

9. A variety of papers representing their work is available in the publication, The Creative Person (A Conference Presented at the Tahoe Alumni Center, October 13-17, 1961). The Institute of Personality Assessment and Research (IPAR), University of California, Berkeley.

10. Bruno Bettelheim, "The Problem of Generations," Daedalus, Winter, 1962, pp. 68-97.

11. Anne Roe, The Making of a Scientist (New York: Dodd, Mead, and Co., Apollo Editions, 1952).

12. Bernice Eiduson, The Scientists: Their Psychological World (New York: Basic Books, 1962).

13. IPAR, op. cit.

14. Ravenna M. Helson, "Creativity, Sex and Mathematics," in The Creative Person, op. cit.

15. T. R. McConnell and Paul Heist, "The Diverse College Student Population," Nevitt Sanford (ed.), The American College (New York: John Wiley and Sons, 1962). Other publications are available at the Center for the Study of Higher Education, University of California, Berkeley, California.

16. See Roe, op. cit., and Frank Barron, "The Psychology of Imagination," The Scientific American, September, 1958, pp. 151-166.

17. W. Lange-Eichbaum, The Problem of Genius (New York: The Macmillan Company, 1932).

18. C. Lombroso, The Man of Genius (London: Walter Scott, 1891).

19. Barron, op. cit., p. 164.

20. Alan W. Watts (quoted in "The Problem that Plagues Thoughtful Women," Redbook, February, 1964, pp. 92, 94), feels that we undervalue what is figuratively and poetically feminine. As he says, "Modern man has turned his back upon the typically feminine aspect under which he reaches the creative fountain of his own inner being." Dr. Watts believes that there is both a male and female kind of attention or sensitivity. Women tend to have a "kind of generalized sensitivity"--male attention is concentrated, sharp, and conscious. He feels that it is unfortunate that the "floodlight" kind of perception is grossly undervalued in our society. Men freely admit that women may have a particular affinity for grasping relationships, for insights into situations--but they seldom seem to consider these qualities of primary importance.

21. David McClelland, The Achieving Society (Princeton, New Jersey: Van Nostrand, 1961).

22. Roe, op. cit., pp. 232-233.

23. Florence Rockwood Kluckhohn, Lecturer on Sociology in the Department of Social Relations at Harvard (quoted in Redbook, ibid., pp. 92, 94).

24. Abraham H. Maslow, "Psychological Data and Value Theory," op. cit., p. 132.

IV. RESEARCH RELATED TO THE DEVELOPMENT OF THE PRESENT STUDY

In our introduction to this study, we stated that our research had been motivated, as perhaps all educational research is, by a desire to help a particular school population to develop more fully in a psychological sense. The population with which we were especially concerned was made up of academically talented adolescents; and we interpreted the dimensions of psychological growth to include the intellectual, the creative and the ethical. It has been our thesis that such growth would be inhibited and eventually stunted if the young person's development toward identity, through self-awareness and self-understanding, did not find a responsive environment. This increase of self-understanding was felt to be concomitant with an ongoing search for an understanding of the world. Both understandings must occur simultaneously and be seen as a dynamic way of experiencing existence, which, as May has said, refers to " . . . coming into being, becoming."[1]

To help these able adolescents in their search for self in an ever-expanding world, we have suggested that patterns and structures be presented by which this understanding could be facilitated. We have felt that exceptional human beings might serve as compelling and worthwhile models. It was our judgment that the kind of people who might be chosen as most truly prototypic and ideal in terms of human development had qualities that went far beyond what has been thought of as genius, i.e., highly developed intelligence or creative expressiveness of a superior order. The extension beyond the ordinary limits of genius was felt to include a deep concern for humanity,* and it was this kind of individual that we felt students must meet as models for identification. It was also our conclusion that much could be learned from the life patterns and attitudes of these prototypic adults that would supply guidelines for the planning of educational programs for able students and would provide ways of understanding these gifted young people.

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*The rare individuals whom Maslow feels are self-actualizing have been described as being creative in all of

In reviewing the literature in an effort to find studies of adults with self-transcending dedication to the good society, we found no carefully documented research aside from Maslow's descriptions of self-actualizing adults. However, as we read the research which has charted the early development and present attitudes, interests and values of creative adults--especially those who might be termed as both intellectually able and highly creative--we became aware of ways in which we might study talented and potentially creative adolescents. It seemed to us that we might gain much by making an effort to determine if students that we had identified as creative were, in interests and attitudes, like the adults who had been selected by their peers as highly creative. Were such qualities as openness of mind, interest in intellectual and aesthetic matters and a disposition to the contemplative--all seen as characteristics of creative adults--apparent also in adolescents, especially those who describe themselves as creative intellectuals? And will these young people and others[2] profit by educational patterns which feature intellectual challenge and freedom

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the generally acknowledged ways, as well as being " . . . altruistic, dedicated, self-transcending, [and] social. . . . " (Abraham H. Maslow, Toward a Psychology of Being [Princeton, New Jersey: Van Nostrand Company, an Insight Book, 1962], p. iii). It is our feeling that the prototypic-ideal, with the unique qualities Sorokin has described, have carried these concerns a step further in the sense that they have affected, in a positive way, not just community or profession, but rather the whole course of history. (Pitirim A. Sorokin, "The Powers of Creative Unselfish Love," Abraham H. Maslow [ed.], New Knowledge in Human Values [New York: Harper and Brothers, 1959], pp. 3-12).

and which both creative adults and adolescents indicate are desirable?*

In the study immediately preceding the present research, we were able to study in considerable detail the attitudes, interests and values of almost 100 adolescents who had described themselves as creative intellectuals. Through a study of non-intellectual factors (using observations, interviews, questionnaires, as well as attitude, personality and value scales), we had found that students who identified themselves in this way, i.e., as creative intellectuals,[3] were markedly different from many other able adolescents. The young people (among the superior adolescents) most unlike the creative intellectuals in these non-intellectual factors, were those who identified themselves as social leaders. This latter group indicated a relative lack of interest in ideas, especially those of a philosophical, theoretical and aesthetic nature, and were significantly more dogmatic and rigid. In addition, results of a problem solving test indicated that the mean critical thinking score (ACE, Critical Thinking Test, Form G) for the creative intellectuals was significantly higher than for the social leaders.

Generally speaking, the creative intellectuals were idea-oriented, independent and individualistic in thinking style, showed a self-sustained interest in learning and were tolerant of and concerned for their fellow human beings. In studying the scales and specific items that seemed to characterize most clearly these more creative adolescents, it was apparent that there was a surprising congruence in attitudes, interests and values between them and highly creative adults.* Beyond this, there were indications that a number of adolescents showed the qualities of social concern apparent in self-actualizing adults, and a few appeared to have the contemplative frame of mind of the philosopher-generalist.[4]

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*An important part of such an educational pattern would be the opportunity for the young people to meet the creative adults.

Within this creative-intellectual subculture, both the adults and the adolescents tended to transcend sex stereotypes. The male and female creative styles became more like one another as creativity became more marked. Such highly creative people were individuals of complex personality structure--simultaneously masculine and feminine, independent and sensitive. They were feet-on-the-ground realists and head-in-the-clouds idealists who live in the past, present and future.

Both the boys in our study and the highly creative men in other research frequently showed an aesthetic sensitivity and an awareness that has been termed feminine. Many were inclined toward poetry and philosophy, and at least some of the men and boys were humanely concerned and surprisingly lacking in prejudice. These qualities--among both fledglings and mature individuals--were sometimes apparent in scientists and mathematicians, as well as in artists, writers and musicians. Although the culture labels these attributes feminine, the males who possessed them were often described as highly independent and achievement oriented; in other words, masculine.

Highly creative women who have won recognition for their achievements were found to be similarly complex. Many of them were willing to break with convention and become intellectual, independent and determined. At the same time, a review of literature reveals that most of the truly outstanding women remain aesthetic, humane and intuitive. There appears to be a companion group of girls with the same inclination. In their self-reports we found that these girls wanted to achieve independently, but they also remained intuitive and compassionate. We saw this expressed in many ways. For example, one of our girls said, "I feel I must be very concerned about the future now, because what happens in the future is determined by our actions and deeds in the present." With the proper encouragement and tutelage and an education which cultivates both being and becoming, a much larger proportion of these young people could develop beyond intellectual excellence and begin to approximate the interests and attitudes of Maslow's self-actualizing adults.

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*The term "highly creative adults" in this chapter refers particularly to individuals with the stature of those described in the studies being made at the Institute for Personality Assessment and Research at Berkeley. See Chapter III, "Research Literature: The Creative Adult."

It was our belief that it is the moral responsibility* of education to develop programs and ways of counseling that will allow many more students to become self-actualizing in the sense of helping each realize his potential in a context of concern for all. The task is not seen as an easy one but in at least two respects the situation would seem to facilitate such a direction of change. There are, as we have noted, a number of able adolescents who are already creative in their styles of thinking and projected life styles and perhaps as many more who feel if conditions (school demands) were changed they would become more creative. In addition, as Henle has pointed out, all human beings have great talent for this task, i.e., thinking creatively about their lives. Both teachers and students can not only learn to value open ways of thinking but can come to see the paradox that Henle points out--that it is in relation to our own lives that " . . . we do the least creative thinking. Yet this is precisely the area in which we are best equipped for it and where the rewards for such thinking are the greatest." Such efforts toward self-actualization or creative thinking in relation to one's own life bring each individual self-knowledge, Henle asserts, and she goes on to show that in this aspect of education " . . . meditation about one's own life carries the reward of increased understanding of common human problems." Conversely, " . . . increased clarity with regard to general human problems is an important avenue to self-knowledge."[5]

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*We can also interpret the effort to think creatively about one's life--to attempt to become self-actualized--as the moral responsibility of each individual. As Buber has written, "Every single man is a new thing in the world and is called upon to fill his particularity in the world." (Martin Buber, Hasidism and Modern Man [New York: Horizon Press, 1958]).

We must develop programs and ways of teaching and counseling that will foster this creative development and make an evolutionary breakthrough possible. Ways should be provided for all those young people who have strong predispositions to develop creatively, intellectually and morally to receive the necessary stimulation and encouragement. And we must also supply opportunities for those who have not attempted to touch life beyond the usual limits but still show, as almost all healthy young people do, a willingness to listen and learn. Thus, we again return to the question that we have asked ourselves for the past decade: What kind of an environment can we fashion and foster that will allow such predispositions to flourish? Can we develop such a free and evocative situation within a school setting?

As was indicated in Chapter III, we can make certain inferences as to improvements in educational patterns for creative young people by reviewing the assessment studies of highly creative adults. From the accounts of these adults as they reviewed their memories of school and learning experiences, it became clear that most had wanted opportunities when they were young to work independently, and most had been eager to meet an accomplished adult in their field of special interest. Strong interests in a given area and a desire to do creative work were apparent among some as early as age eleven, although others tended to be readers and philosophers and generalists, and many were literally interested in everything. In comparing these conclusions as to what the parameters of education should be with attitudes toward education expressed by the creative adolescents in our study* we found striking similarities.

These young people indicated on the questionnaires and attitude surveys that they would like to spend more time discussing and learning about new ideas in school. They have described the ideal teacher as one who encourages creative research and individual projects, who is intellectually competent, and who will lead discussions in which philosophical, moral and ethical ideas are considered. In a similar vein, they have described the ideal school as one which has philosophy seminars, debate teams, science and literature clubs, and especially one which has a fine library and allows students the freedom to use it. These creative students have indicated that they wanted and expected to work (study) during non-scheduled hours (free time) and in their own idiosyncratic ways.[6] In other words, they read with a purpose. But many were also reading addicts who said they would read anything, even the telephone book, although they did not like the plot. They particularly liked to read at advanced levels: the classics, philosophy and religion, high-level science fiction, far-out poetry, social satire, plays, serious novels and outstanding news magazines.

We will make a most moderate and data-based statement if we report that the creative intellectuals find that only rarely do teachers or schools fulfill these hopes. In fact, most of this group whom we have surveyed have been quite unenthusiastic about the conventional school programs--and some are exceedingly harsh in their judgments of the usual pedagogical procedures. They want and perhaps even expect a great deal more from their schooling than they feel they are getting; their plea is for an evocative and responsive environment. They seem to want to master everything, even themselves, and they dream of a Utopian school--perhaps similar to the one described in Huxley's _Island_[7] (or they might even settle for the one described by Roger Ascham in the sixteenth century)--one which offers flexibility, freedom, challenge and stimulation. These qualities in a learning environment are seen also by psychologists and educators as essential for any effective educational program,* but they are not patterns typically found in the schools as both Hughes and Flanders have shown.[8]

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*The data from our first report in the series entitled THE CREATIVE INTELLECTUAL STYLE IN GIFTED ADOLESCENTS gave us much specific information about educational patterns which these adolescents considered to be desirable.

As the creative intellectuals have indicated, they seldom are assigned a teacher who discusses philosophy and encourages original research, and they see the schools as offering little flexibility. We must conclude in the normal course of events that the creative style in youth is not apt to be matched by creative environments. This means that certain essential links in the ecology of these young human beings are missing and that unless these are supplied creative development may be limited. Further, the more highly creative a student is and the more eager he is to learn on his own, the less apt he is to find a school environment that will fit.

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*It should be noted also that the specifications for an ideal school given by the creative intellectuals were quite different from those given by the average students. Evidently the educational dreams of the average adolescent do not tend to agree with the experts' dreams which we have already noted were much like those of the creative-intellectual, able adolescent. It would seem that the average student is fairly well satisfied with the textbook-recitation routine, and his dreams of a Utopian school coincide remarkably with existing educational programs. It may be that this is the group who as adults find the open system a disturbing one and thus have the problems Hoffer delineates in the _Ordeal of Change_ (New York: Harper and Row, 1963) and Fromm has described in _Escape from Freedom_ (New York: Farrar and Rinehart, Inc., 1941).

It is the thesis of the research to be reported that a carefully planned school program which makes use of challenging materials and allows for individualized approaches could correct the educational deprivation which the more creative students report. And it might also stimulate psychological openness and more interest in learning in their counterparts who are intellectually able, have creative potential, but have not developed a creative style.

In a pilot program, immediately preceding the present study, students were asked to formulate their world views in individually developed textbooks which they assembled from their own writings and from clippings from current magazines. Besides the encouragement to read extensively in current periodicals, it was suggested to the students that they read biographies to develop concepts of the life styles of creative adults. An additional part of the program was four style-of-life films which were developed to give students an understanding of creative style in career and life patterns.* At the end of this pilot year, we found that our tests revealed changes in the desired direction and felt that the experimental program, if we continued to develop it in this style, might produce changes in attitudes in the direction, i.e., toward the creative style that we held to be desirable. Our judgment of the effectiveness of the new approaches was influenced by comments students made in class discussions and interviews. Many students enjoyed reading magazines and books for which no time is allowed in the routine demands of class assignments. The students were taken into the home of an artist and an historian in the new style-of-life films--a new experience for most. Throughout, these young people seemed eager for insights into the human situation, and many of their comments indicated changes in viewpoints. One boy read a biography of Walter Reed and commented as follows: "I thought that mankind was going to the dogs, but now with men like Walter Reed trying to help mankind, still discovering wonderful things like the Salk and Sabine vaccines, I have changed my opinion."

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*The nature of this pilot program is described more completely in Chapter V.

As a result of these preliminary efforts, we continued to develop the new program in essentially the pattern we had used at the outset. However, we made certain changes. In general these changes tended to move the program away from a typical career emphasis toward the introduction of the intellectual disciplines and the creative style of thought and living. To accomplish this, we felt it was desirable to introduce students to myths and heroes, as well as to social movements and to humanistic and scientific discourse. We wanted to help students become aware of the multiple dimensions of the world--its men, institutions, works of art and ideas. Thus, it was important to supply materials that presented significant ideas of a nature not usually encountered by secondary students--from primary sources rarely quoted in textbooks.

Not only did we feel that important issues must be presented, but we also were convinced of the need to present alternative viewpoints, for students must become aware of the vast range of possibilities in any situation. All experiences shape the developing personality; thus it was our conclusion that selections which present mature insights and convictions, and materials which are written with style and clarity provide more stimulation for growth than do the noncommittal generalizations of textbooks. We felt that these materials should not be provided for students to memorize but rather as an array from which each student could make choices and thus come to clarify his beliefs and understandings, his feelings about himself and his identity. In this way, each student should develop that feeling of reality that May says is found in the individual who " . . . is choosing, committing, and pointing himself toward something right now. . . . "[9] It was our hypothesis that such a program would moderate the loneliness and uncertainty of creative and intellectually inclined students and foster an increased motivation to learn, psychological openness and independence of thought in other able students.

More specifically, it was hypothesized that by introducing students to creative adult models who take ideas seriously and care deeply about them, and who care about their society, and by exposing these students to significant ideas, issues and patterns of thinking, such a program would:

(1) create more interest in learning, in finding patterns in knowledge and meaning in life, and in thinking independently;

(2) foster an aesthetic sensitivity--an openness to experiencing with all the senses and a willingness to continue growing, and;

(3) develop concern for both nature and fellow-men and an interest in carrying out commitments to others and to self.

With the above objectives in mind, we developed a new program for able ninth graders in the Lansing Public Schools. Chapter V, "Development of Program," describes this course in detail.

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IV. RESEARCH RELATED TO THE DEVELOPMENT OF THE PRESENT STUDY

1. Rollo May, "The Origins and Significance of the Existential Movement in Psychology," Rollo May et al (eds.), Existence: A New Dimension in Psychiatry and Psychology (New York: Basic Books, Inc., 1958), p. 12.

2. In a survey of 400 gifted adolescents made in 1960-1961 (the first of three entitled THE CREATIVE INTELLECTUAL STYLE IN GIFTED ADOLESCENTS and to which we have referred briefly in Chapter I) we found that not only did about one-fifth of the gifted group describe themselves as creative intellectuals, but an additional 20 to 30 per cent indicated that they strongly valued the creative style in teachers, schools and themselves. However, they did not feel their present behavior patterns would qualify them as creative intellectuals (Elizabeth Monroe Drews, THE CREATIVE INTELLECTUAL STYLE IN GIFTED ADOLESCENTS; Motivation to Learn: Attitudes, Interests and Values, Report I in a series; Final Report of the Cooperative Research Program, E-2, U.S. Office of Education, "A Study of Non-Intellectual Factors in Superior, [Average, and Slow] High School Students" [East Lansing, Michigan: Office of Research and Publications, Michigan State University,1965]).

3. Our impressions were aided by a study done by Peck and Havighurst. They have developed interesting insights into a group of subjects, designated as rational-altruistic, who have strong "principles of conscience" which they hold open to examination and redirection. This group is open psychologically in the same sense that creative adults are and show many patterns of healthy development. But this phenomenon, as the authors say, " . . . deserves and requires a great deal more precise definition and more detailed, systematic study . . . ." (Robert F. Peck and Robert J. Havighurst, The Psychology of Character Development [New York: John Wiley and Sons, Inc., 1960], pp. 169, 173).

4. As Gardner points out, there are practical gains for the individual who is generally well educated. He believes that " . . . even in our own society there may be overproduction of educated talent in specific lines. Indeed, on many occasions in the future there will be an imbalance between the number of men trained for a given line of work and the number of jobs available. Attempts will be made to minimize this through accurate forecasts of manpower needs, but experience with such forecasts has been discouraging. The alternative--and the wiser course--is to educate men and women who are capable of applying excellent fundamental training to a wide range of specific jobs.

"Nothing contributes more damagingly to the unemployment of educated talent than rigid specialization and rigid attitudes supporting this specialization. The future is necessarily hazardous for the individual who trains himself to do a specific job, receives an advanced degree for that line of work and believes that society owes him a living doing it. If technological innovations reduce the demand for his specialty, he has nowhere to go. On the other hand, if he is broadly trained in fundamental principles, and knows that he may have to apply those principles in varying contexts over the years, he is in a position to survive the ups and downs of the job market." (John W. Gardner, Excellence: Can We Be Equal and Excellent Too? [New York: Harper and Brothers, 1961], pp. 42-43).

5. Mary Henle, "The Birth and Death of Ideas," H. E. Gruber et al. (eds.), Contemporary Approaches to Creative Thinking (New York: Atherton Press, 1962), pp. 48, 57-58.

6. Roe in her study of outstanding scientists (Anne Roe, The Making of a Scientist [New York: Dodd, Mead and Co., Apollo Edition, 1955]); MacKinnon in his assessments of highly creative people (Donald W. MacKinnon, "The Nature and Nurture of Creative Talent," The American Psychologist, Vol. 17,[1962] pp. 484-495); and the Goertzels in their review of the biographies of eminent men and women (Victor and Mildred Goertzel, Cradles of Eminence [Boston: Little, Brown and Co., 1962]) all report that these individuals who were leaders in their fields indicated a similar desire for freedom and challenge in education and an equal distaste for teacher-assigned drill and memory work.

7. Aldous Huxley, Island (New York: Harper and Row, 1962).

8. The recent research involving classroom observation and study of teacher behavior by Marie Hughes at the University of Utah (Marie M. Hughes, Development of the Means for the Assessment of the Quality of Teaching in the Elementary Schools, Salt Lake City: the University of Utah, 1959) and Ned Flanders at the University of Minnesota and the University of Michigan (Ned A. Flanders, Teacher Influence, Pupil Attitudes and Achievement, Final Report of the Cooperative Research Program, 397, U.S. Office of Education [University of Minnesota, November 30, 1960]) makes this very clear. Both investigators have done their studies with funds provided by the U.S. Office of Education.

9. Rollo May, "Contributions of Existential Psychotherapy," op. cit., p. 77.

PART TWO:

CURRICULUM DEVELOPMENT AND METHOD

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V. DEVELOPMENT OF PROGRAM

A. Technological and Social Change: Implications for Educational Change

It became apparent as we studied the suggestions for educational changes that were made by both the creative young people and by "third force" psychologists and educators that these proposals required basic revisions in educational patterns. If self-sustained interest in learning and an attitude of humane concern are necessary for human survival and for positive evolution,* then it is vital that education and guidance programs must be not only reconstructed, but that they must move in new directions. Whether we speak of this reconstruction in Margaret Mead's terms and see it as a "conscious creation of conditions within which clusters of evolutionary significance may occur"[1] or we see it simply as curriculum revision to foster self-actualization of students, we can only conclude that fundamental changes are necessary.

Not only is there rather general agreement among educators and social philosophers that we must have change in educational patterns, but there is also a degree of consensus as to what the direction of this change should be. It is this consensus, arrived at by both talented youth and the growth psychologists, regarding the direction of change, that we have accepted and used as aims for our study. Broadly speaking, our conclusion has been that the new patterns of education must be more flexible and more challenging than the old and that the new should have an ideology.[2] Chris, in Jules Henry's Culture Against Man,[3] gave up poker because it had no ideology. It is possible that many perceptive adolescents reject school for the same reason. Perhaps they do not assume responsibility for their education because what they are doing makes no sense to them. They cannot discern a reason for, a theme behind, a philosophy within or an ideology underlying school learning. It does not help them understand themselves or the world in which they live. And it is our contention that this is neither a satisfactory nor a necessary state of affairs.

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*Evolution is defined here in Julian Huxley's terms as "a progressive realization of intrinsic possibilities." (Julian Huxley, "Evolution and Genetics," James R. Newman [ed.], What Is Science? [New York: Simon and Schuster, an Essandess Paperback, 1955], p. 288). However, such intervention in human, social and technical development can carry our race to either undreamed of glory or to peril. Rush sees in the present crisis not the threat of atomic catastrophe but " . . . the emergence of intelligence, and its intervention in the course of evolution." (J. H. Rush, "The Next 10,000 Years," Saturday Review, January 25, 1958, p. 11).

The school milieu could be and must be changed fundamentally to allow students to function and to communicate in ways that will better fit them for the complexities of the future. The very issues which are presented to the students can be of such a nature that these would become the foundation of the philosophy which is communicated. In more specific terms, this new education for an unformed future is seen as both presenting to and involving the students in large-scale and fundamental matters such as the condition of man and the meanings and mysteries attributed to existence, the diversities and unities of knowledge, and the possible integrations of society and ideas. It is felt that such education would help each student to develop the conscience and eventually the wisdom to participate in his own evolution and to become the responsible agent not only for his own future but for that of his planet.[4]

These conclusions as to needed directions of change, i.e., the emergence of more human qualities in human beings, are strikingly similar to suggestions for basic changes in social organization proposed by many political scientists, economists and other social philosophers. Man has become the awed master of awesome power--the atom and perhaps the very sources of life--and yet has not learned how to respond or to be responsible. Thus, we see on the broad social level as well as in each individual life, that decisions must be made and responsibility must be taken. Our young people must learn to both conceptualize the problems and think about them in rational ways, if they are to be the emerging conscience for themselves and the cosmos.

Social philosophers and scientists point out that we cannot reject this new knowledge, and that we cannot disregard the change it entails.[5] However, mere acceptance of the concept of change or of progress is not enough. Education must help each individual to make choices--continually, critically and responsibly, for as the scientist-philosopher Dubos points out, "In many fields, the wisdom of the father is now of little use to the son."[6] If there is to be order in the knowledge which is in the process of becoming, each of us must continually construct this order by disciplined use of intelligence.* And in doing this we cannot forget values, human experiences and human needs. This is not just a problem for the future or for the present, but we must also heal the schisms of the past. Dubos feels that scientific knowledge has become alienated from human experience and that technological applications have become alienated from human needs. Similarly, May sees each science developing in its ". . . own direction; [with] no unifying principle, particularly with relation to man," and h sees that this has contributed to man's alienation from himself.[7]

The informed and critical intelligence needed to develop these unities is seen by Theobald, the economist, as a quality that is essentially human. Further, he feels that if we want to foster it and allow it to function effectively, we must make " . . . fundamental changes in our conceptions of social and economic organization."[8] The most crucial questions relate first to whether or not modern man will survive, and second to the quality of life he will lead if he does survive. For Theobald the challenge is to avoid the nightmare of a maverick technology and the dehumanization of man by working toward the development of " . . . a culture far above anything which has ever existed in the past."[9] It is our contention that such changes will involve fundamental revisions in educational as well as social and economic organization.

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*We cannot solve our problems by nostalgic invocations of the past or by faith that problems will solve themselves or that Americans will always emerge triumphant--we must apply critical intelligence.

Such reconstructions in educational patterns must be made as rapidly as possible if they are to be effective in an era of accelerating change. It has been the purpose of this study to suggest and try out one pattern of educational change which has relevancy to the suggestions made above and which we hope will meet some of the requirements of the era in which we live.

Our preliminary research with young people and our review of the problem in general (particularly adolescent needs and the knowledge explosion) convinced us that educational innovations were particularly needed in the social science-humanities area, especially in career programs. We knew, however, that building a new course would not be an easy task. From the outset we have been aware that our efforts would be exploratory and tentative, but throughout the development of the new program we have also remained cognizant of the fact that there is no alternative but to make the effort. We have recognized that the materials we would produce and the teaching approaches we would recommend would be incomplete, imperfect and emergent, but we hoped that they would be changes in the right direction.

Our prior studies had confirmed our belief that only by working for the development in our young people of a sense of responsibility and for general understandings of what positive social and psychological evolution might mean can we reasonably hope that the "fulfillment society" may someday take the place of the "welfare state."[10] The concern in the future must be for the quality of life rather than for survival. We also came to feel that only by making an effort to develop such a humanistically oriented society or social cluster[11] at the same time that we try to start young people on the route toward self-actualization can we hope for what Maslow calls the "evolutionary breakthrough."[12]

Our conclusions were that there was a vital need for educational change and that the new education must encourage more democratic and creative and humane ways of living. We hold that customary patterns of education are inappropriate. Education which conditions children to repeat textbook formulas and to unquestionably accept teacher dictum, which concentrates on the problems of the past and on teaching children as if they were all alike, obviously, does not prepare young people to become self-actualizing,[13] and it does not prepare them to live in today's society. There is no alternative but that education and guidance be reorganized and reconstructed in fundamental--even revolutionary--ways.

This education for a new society and new patterns of life must become, through the young person who is educated, the agent for positive change. For this to occur, we not only need to rethink every aspect of the educational program, but we also need to help young people understand the changes that are necessary and how education is involved. These changes must be built carefully and explicitly into any program that proposes to prepare self-actualizing human beings to live in a "fulfillment society."

With this general concept of education in mind, we developed the premises that were to be the base for the new program. These premises include statements to the effect that education must be redefined in the sense that it will be seen more as a state of mind and a continuing process rather than as an event. Thus, the educated individual will come to take responsibility for his learning and to consider it as a basic part of his life. In a very real sense he will learn how to learn, and will work toward reaching an ever-deepening understanding about his fellow men and his natural environment. These were the guidelines we planned to use as we prepared the materials for our new program. It was our objective to try not only to develop a course which might accomplish these ends but to help the students become more aware of the aims of this pattern of education. Thus we planned to develop a new textbook and a series of films as avenues for informing the able ninth graders (who were to be our experimental population) about these new definitions of education, e.g., education as lifetime learning and as a way of life.

We felt that students would be more apt to be truly engaged in education if they understood the goals behind and the reasons for it. With such understanding on the part of the students we felt the program would be more effective. For example, we felt that if we wanted students to learn to learn, they, as well as the investigators, should be as thoroughly familiar as possible with the nature of learning and the nature of things to be learned. Thus, the "input" of the course should not only be a specific compendium of understandings, skills and content, but these should be communicated to the student both explicitly and implicitly. It has been our experience that students frequently will say that they do not understand why they are asked to study English or social studies. We feel such lack of understanding impairs learning. We wanted the students to understand what this new course was all about, how the materials related to the intellectual disciplines, and how class procedures introduced them to the nature of knowing. More importantly, we wanted all students to learn how an education might help them to understand the meaning of being human and the ways that they might become part of their local communities and the world ecology.*

We also wanted them to be aware of the skills and thinking talents most needed for confronting knowledge in an intellectual and scholarly manner by a citizen in today's world. And, finally, we wanted to give them an overview of realms of knowledge, kinds of data about the world and about the human species and of conceptions of the universe. In the development of content, we wanted to use materials that would be more appropriate for intellectually superior adolescents than those usually presented to the students in the secondary schools. The new program would therefore have a content quite unlike that of most career courses and social studies programs.[14]

To accomplish these objectives we set about to find ways to communicate to the students a number of basic concepts in the course. We wanted them to understand what is meant by lifetime learning and why each citizen in today's world must hold such a concept of learning. We wanted them to be aware of the need for self-initiated and self-sustained learning in an area in which knowledge is continually becoming more complex and expansive. We wanted them to be abreast of the times--to meet the great ideas and to know the outstanding people, to face the larger issues and to engage in the great dialogues. Finally, we wanted them to clearly understand the differences between an education in which one assumes personal responsibility and which can lead to self-actualization (in being and becoming terms) and the usual concept of education as teacher-assigned units of learning.* We felt that through these means--carefully constructed material and planned educational processes and approaches--we could help each student carry out adaptive evolution of both a personal and social nature.

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*We agree fundamentally with Reiser when he suggests that each of us must learn and that we must teach others to "integrate human knowledge around some overall conception of man's destiny." (O. L. Reiser, "The Integration of Knowledge," Julian Huxley [ed.], The Humanist Frame [New York: Harper and Brothers, 1961], pp. 233-250).

Change will not occur automatically or magically, and it will not happen by the mouthing of slogans nor the listing and repeating of curriculum objectives; but, it may come about if we undertake the painstaking work of changing the particulars as well as the generalities in the curriculum and in our ways of teaching. The direction of change, we feel, should be toward helping people to become self-actualizing in an ever larger and more humane context.

It is our conviction that changes can be made in an entire school program or in a single course which will foster motivation to learn and which will cultivate an openness of mind and heart that will contribute to continuing psychological and spiritual growth. This new education must become something education never has been--a philosophy or way of life for each individual.

In summary, we may say, such a reconstruction of social directions by educational means can only occur:

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*We assumed that such ideas might be acceptable to talented students whom we had already discovered to be the "half-way thoughtful adolescents" who had reached the stage in life when Bühler reports that they become aware that "one's own life is one's own to deal with." (Charlotte Bühler, "The Human Course of Life in Its Goal Aspects," Journal of Humanistic Psychology, Vol. 4, Spring, 1964, pp. 1-17). We felt that, like most of the able students that Mallery interviewed, these students wanted to talk about who they were and how they might fit into the world. (David Mallery, High School Students Speak Out [New York: Harper and Brothers, 1962]).

(1) if education is redefined and students come to accept its new meaning,

(2) if new skills and ways of learning are taught, and,

(3) if curriculum content is revised.

These approaches were considered to be the aims of the course and will be discussed in detail in Section B, "Program Aims: New Directions in Education," which follows.

B. Program Aims: New Directions in Education

1. Education Redefined

A primary objective in this new program has been to help students assume responsibility for their own education. Since most students seem to feel that they are "being educated" by outer forces,rather than that they must educate themselves, we felt we must help the students redefine education and at the same time be sure that all of us who worked with the program understood these definitions clearly. It was necessary that everyone (teachers, students and researchers) involved in the program work from a similar premise which was that students must think creatively about their lives. This means that they will strive to be aware of themselves (how they learn and how they feel), that they will become independent in their efforts to learn, and that they will try to develop a unifying philosophy of education and life.[15]

In accepting such a direction of development as possible, we agree with Julian Huxley: "The next decisive step in evolution will . . . be the fuller development of self-consciousness."[16] This parallels the more optimistic view of man taken by "third force" psychologists. For example, Allport, in discussing the forward thrust of "becoming," sees man not only as a "self-conscious" but also as a rational creature who creates his own style and his own future.[17] The consensus is that, given a healthy organism and a responsive environment, the direction of growth and the choice made will probably be good.

For students to develop self-awareness and to do creative thinking about their lives, we felt that we must provide guidelines. Students who could accept these general premises still would need to know the responsibilities and behaviors involved. Thus, the following major propositions, used as frames of reference in developing the program, were communicated to the students in various ways:

> Each student must develop an identity (find himself) and find meaning in life (discover a place for himself in the world). He must see this process of becoming (self-actualization) as the central purpose of education. In this sense, in his search for excellence* the student must place his efforts to grow personally in a context of concern for others. In our program the plan was to offer students competency models as well as discussion and theory which would help them understand the process of self-actualization.
>
> Each student must take responsibility for his own education, his own acts and his own statements. This means that each must become a self-catalyst, seeking an education and learning because he wants to and not because he is paid, rewarded or told to. The state of mind that is needed is one that is self-determined and self-paced, self-maintaining and self-enhancing. As the student comes to see himself as responsible and not merely reactive, he may understand the immediate as well as the long-term benefits of this attitude. For example, self-chosen work is apt to be energizing, and imposed work is often energy-draining. In order for such autonomy and initiative to develop, we felt educational materials and approaches must offer many opportunities for responsible and independent activities.
>
> Each student must come to view education as a continual and integral part of living. To be educated, then, is to learn to live. Learning is both a way of life and living itself, not just a preparation for life. Students must be given school work that is related to, not separated from, the larger world. They must see that education goes beyond the two covers of the

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*Excellence is used in the sense that John Gardner has used the term in his book, Excellence (New York: Harper and Brothers, 1959).

textbook, the four walls of the classroom, the school day and the school year into the limitless experiencing of life itself. Learning becomes flowing and emergent with recurring themes and hypotheses that appear again and again to be restated and retested. The most viable concepts of education are thus ecological.

Each student must see education, knowledge and himself as "open" systems. Thus, education is not only continuous and integral to life itself but becomes an act of creative expansion. To become self-actualizing is to learn to deal with more of reality and with more of oneself. Margaret Mead sees it as an " . . . enlargement of the stage on which every individual acts."[18] And Anderson has seen this openness basic to the very process of creativity.[19] Beyond the premise that education and life should be an integral process, we hold the further proposition that the student and his present life styles should not be confirmed as they are. Instead, new worlds of knowledge and new realms of perceiving should be introduced. Students should be taken beyond the cognitive and intellectual and introduced to patterns of non-verbal and aesthetic perceiving. We must be aware, as Yeats was, that "Art bids us touch and taste and hear and see the world." We must help students to move beyond facts, information and lower-level cognitive tasks to search for meanings, implications and non-symbolic equivalents; and beyond the local to other spheres of action--the national, international and cosmic. In this way, students will see that the point of a subject or a course is not reaching closure, passing an examination and closing the book. They should never feel that all the questions have been answered or that all the questions have been asked. Instead, each should know that the most important questions are those that they will ask when the course is over.

2. New Skills and New Approaches to Learning

A basic aim in this study is to give students a kind of education which will help them become more interested in learning, more able to think and behave creatively, and more sensitive to and concerned about their fellow men. All of these responses and attitudes are aspects of growth-motivation,[20] and as such can be seen to parallel the development of identity. Crucial to this process of self-discovery is the skill that each student must master--learning to learn. This means that the student can think creatively and critically, can solve problems ably and eagerly, and can make wise decisions. It is our contention that many intellectually able students will not maintain an eagerness to learn and a willingness to think, if there is no opportunity for them to practice thinking and problem solving in school. Further, we feel that without opportunities to make discoveries and choices in terms of their own thoughts and wishes, students will find it difficult to discover themselves. In other words, the exercise of choice is an affirmation of selfhood. As Tillich has noted, a man is never more human than at the moment of decision.[21]

Beyond the need to help each student develop thinking skills in order that he can move more readily toward self-actualization, there is also a social need to teach problem solving for, as Dewey noted four decades ago, problem solving is not only the common denominator of the scientific method (and thus a vital talent for all who seek to become scholars) but also the method of political democracy.[22]

In discussing the need of each student to learn to solve problems, there are other considerations that grow out of the general one that such intellectual development fosters self-actualization. Talent in managing reality without (the outer world) and within (the inner world) will increase as students learn to take responsibility for their education. They will improve both because they practice these skills and also because each act of independent discovery (about themselves and the world) will give them a sense of power. Engagement in thinking (rather than merely memorizing) will also allow students, as Dewey suggested, to internalize their learnings. Such processes--discovering on one's own and putting ideas into one's own words--will also enhance the storage and retrieval of ideas.

In view of the fact that we considered learning to learn to be one of the most important aspects of an education, we made an effort to build our program so that students could "try out" ideas, add new insights and make their own decisions. We also felt it was necessary that each student understand that such independent learning and problem solving was important, and also that he understand why it was important. Some of the major propositions which we kept in mind and which we communicated to the students follow:

> Students must choose areas of learning or problems which appeal to them. They will learn best if there is "a thorn in the flesh" (Northrup's term for material which rankles and then instigates thought) and if they really want to know something. We felt that if we presented suggestions on vital and controversial issues and areas within a wide range of possibilities and alternatives, we would help students find problems that appealed to them.
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> Students must learn to think flexibly and creatively. Idea tracking and brain-storming in free-form group discussions can help each student go beyond the limits of his usual perceptions and understandings. Oral expression of thoughts may also lead to "Inner Dialogue" which Jung considered an imperative for self-discovery. We felt that the classroom should provide many opportunities for such oral discourse and dialogue in a non-judgmental atmosphere and an open and unstructured situation. What we have termed "the conversational dialectic" could provide opportunities for exchange and paraphrase that would directly enrich their symbolic skills. Other kinds of discovery can come from the openness discussed earlier (See "1. Education Redefined"), which flexible materials and an accepting teacher will encourage.
>
> Students must learn to generalize from data and to group ideas in meaningful clusters if they are to solve problems. If the classroom climate is accepting and facilitating and the teacher and materials evocative, students should produce a large number of viable hypotheses and theories. Many of these will appear in the form of questions. We felt that presenting important issues as well as an array of solutions and a number of unifying principles would help students to choose, to try out and to form more intelligent hypotheses.
>
> Students must learn ways to test hypotheses and to make critical judgments. An attitude of optimistic skepticism

is basic to problem solving--the student must feel that answers are available but that each is to be tested against logic and information. If materials on key issues which students read contain several alternatives and these are vividly and cogently stated, students may come to recognize, by comparing possibilities, shallow reasoning and non sequitur conclusions. In an open forum with intelligent teacher leadership, they may recognize distorted and incompatible statements and pointless questions. We felt that this might happen if we presented examples of adults who were thinking critically. We also felt teachers could make a contribution by setting the stage for discussions and by helping each student understand that other students could disagree with his ideas while respecting him as an individual.

Students must finally realize that at some point they will have to make a decision and take a stand. They must see that making choices is a skill which goes beyond tracing, relating and evaluating, to the realization that the attitudes and actions of each individual are vital forces in the lives of others. It is at this point that the student may learn the meaning of responsibility. We felt that students could best learn to take a stand and make a responsible choice by coming to know that adults who are influential in our society, teachers included, think things through, make decisions carefully and have ethical concerns about the consequences of their decisions.

3. New Content and Materials

It was felt that young people could not redefine education and learn new skills and approaches unless the content and the means by which this content was presented were changed in dramatic ways. For a decade there has been a "curriculum revolution" (see Chapter I), but it has only now begun to touch social studies and the humanities. With appropriate materials in these areas, students will not only develop a more adequate grasp of the intellectual disciplines, but they will be more apt to develop an adequate conception of knowledge and of self. They will learn the range and possibilities of human excellence if they meet "significant others" and if they are given an opportunity to "stand on the shoulders of giants." In this way creative expansion may become their modal behavior style, and they may avoid typical student behavior--where answers are given too quickly, knowledge is treated too cursorily, and even careers are chosen hastily and carelessly. Thus, behavior can become self-transcending rather than self-confirming.

The individuals that students meet and the materials that students read should release them from the limitations of the classroom and should take them into the artist's studio and the scientist's laboratory and, more importantly, the young people should come to understand how these individuals think. Students should also be introduced to kinds of reading, such as magazines of critical commentary and scientific journals, quite unlike "school type" materials.

Adolescents, and especially those who are intellectually superior, are able to think abstractly and reflectively, can deal with important topics, and have a concern for what Erikson has called fidelity.[23] Teaching materials should be developed with these concepts in mind. Students are aware of the complexity of the modern world, and they know we are living in an era of accelerated change, but we have not given them a metalanguage or metaskills which will allow them to deal with the continuity of change.[24] Although we may not be able to provide all of the needed information, language and skills for dealing with the future, we can show students how others contemplate reorganization[25] or even "invent the future."[26]

If students can be encouraged to derive principles, perform combinatorial feats, and deal with important aspects of the human condition--all in a context of social concern--then it may be possible for us to evolve freely as a species. We did not know how to design educational instruments that would accomplish this, but we hypothesized that if we made it possible for students to meet creative and productive men and women, to study their patterns of thinking, and to understand their value structures, the young people might develop a taste for such activities themselves. We also hypothesized that introducing important social issues and alternative ways of thinking about them would add significantly to the students' fund of information and thinking skills. Some of the major propositions which we used in the development of content follow:

> *Each student must meet through various avenues and media great ideas and outstanding people, including those who approach the prototype-ideal.* (See Chapter II) This will mean that primary sources must be tapped and that the most vibrant of current dialogues and the best examples of moral integrity and courage must be incorporated into the materials of education. Dull and noncommittal secondary sources such as textbooks do not communicate the flavor or the essence of life as it is being lived, nor do they touch off powerful and persuasive dreams. The ideas and people who are presented directly can not only inspire dreams but can also help students fashion their dreams in the realistic ways we call goals. These goals find their destiny out of school and in the midst of the world--a situation which will make education integral with life.

> *Each student must have opportunities to find underlying principles, themes and generalizations which will give form and pattern to an education that could otherwise easily overwhelm by sheer quantity of fact and lack of inter-relatedness.* Such theories, premises and values may become aspects of a philosophy or ideology of education and life. These relationships and conceptual schemes which are presented may help the student to reorganize his thoughts and feelings around more viable and universal principles. For example, commonalities across cultures and theories linking disciplines can be presented at the same time the student is becoming acquainted with diversities within cultures and specialities within disciplines. Thus, Aldous Huxley's incommensurable worlds do not remain completely discrete, and we can realistically hope for a development of common culture and of integration of knowledge and perhaps even of universal man, as de Chardin suggested.[27]

> *Students must be given opportunities to fill out and balance their learning to prevent the bias and incompleteness of the usual public school education.* An effective program must allow for rapprochement between the "two cultures" (the humanities and science); between the Western intellectual tradition and the Eastern (particularly in terms of spiritual and philosophical values); between the affective and the intellectual; between the inner and outer worlds; and between the contradictory aspects of the inner world.

Although it can be argued that there are more than two cultures, most will agree that there has been an overemphasis on science and mathematics and a neglect of the humanities, arts and social sciences in the curriculum of today. In developing a new program which purports to restore balance to a student's education one must remember that the humanities as they have been taught in the past did not offer enough--they did not humanize. Students should be helped to discover the intellectual and emotional meaning of the humanities, arts and social sciences and to relate these understandings to science and to the scientific changes of our age.

The Eastern philosophies with their intimate relationships to art and religion offer an additional dimension and another broad base for understanding the human condition. They help us, in invaluable ways, to comprehend non-verbal learning (aesthetic, emotional)--the sensing, feeling, intuitive ways of understanding.

In many respects, Eastern thought is more inward and subjective than is Western, and perhaps more often concerns itself with such inner-directed questions as "Who am I?" Although there is much concern in Western religion, philosophy and psychology with identity and matters of self and self-concept, little of this has been translated into educational terms. Students need to meet individuals and excerpts from writings which present the subjective and the primary, as well as paradigms for thinking about these sources of knowing. American secondary education and guidance (particularly as this relates to careers and educational planning) are far too concerned with educating in the Western tradition and for the outer world.

This understanding of the inner self and the training of the inward eye can help young people to achieve a balance within self. The most highly developed people are those whose personalities are both complex and contradictory. Jung has defined the creative person as a "synthesis of contradictory aptitudes." Girls can, perhaps, more easily develop a satisfactory balance between the masculine and the feminine aspects of their personalities than boys. This is true because our American culture, with its emphasis on making money and making things, is in so many ways a man's culture. However, students must come to understand that almost all the most highly evolved men, and, in many cases, the most creative men, have developed and accepted in themselves so-called feminine attributes and values--love, aesthetic appreciation, synthesis as opposed to analysis, and intuitiveness as distinct from purely intellectual discourse.

In the sections which follow (C through E), we will review our procedures in developing new teaching materials and approaches which were designed using these aims as guidelines. In the final section (F), we will discuss the relationships of the new content and materials, as well as the methods which we have termed "new directions" in education. At all times it must be remembered that although these directions have been suggested in many statements of educational aims and are central to many psychological theories, they have rarely been the pattern of current American secondary education.

C. Content Change: The Being and Becoming Film Series

The major focus of the course was to be self-actualization, and our primary effort was to develop materials and teaching approaches that would foster such development. Through the media of film models and by the use of the identification process and other cognitive responses, we assumed that students might change attitudes and values toward a more creative style. To test this assumption, we produced ten thirty-minute films which were entitled the Being and Becoming Series.* These films presented--as possible role models for able adolescents--men and women who were creative, scholarly, and had deep social concern. The series was developed in such a way that the impact of the ten films would be, due to common themes or underlying concepts, more than the additive effect of ten discrete biographical-documentary films. The major themes recurred,** but never without

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*For a discussion of the significance of the terms "Being" and "Becoming," see Chapter III, p. 53.

**In our review of research in the area of learning, we realized that for maximum effectiveness in a course where a number of difficult abstract ideas were being presented, we must use such patterned repetition. Hovland, for example, stresses the need for repetition of material to assure mastery, and indicates that this idea has been well established variation. In other words, certain qualities,* selected as exemplifying the life patterns and values of self-actualizing adults were stressed in each film, although the focus was always different, and the personalities through which points of view were expressed varied greatly. A number of

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by the experimental literature. (C. I. Hovland, "Human Learning and Retention," S. S. Stevens [ed.], Handbook of Experimental Psychology [New York: Wiley, 1951], pp. 613-689). In the case of gifted children, the literature on learning points out that repetition may mean more than simply a means of assuring mastery. As Lumsdaine, Sulzer, and Kopstein have pointed out, subjects who were above average in intelligence did not need repetition as much as they showed the ability to profit from it. These researchers report gains from a given amount of repetition as being greater for brighter subjects. (Lumsdaine et al., "The Effect of Animation Cues and Repetition of Examples on Learning from an Instructional Film," Report No. 24 for the U.S. Air Force Human Research Laboratory [Washington, D.C.: HRRL, 1961]). These experimental findings agreed with the opinions of good teachers, and, we felt, gave validity to our approach of repeating major themes in the films. To supply the variety needed by gifted children, who may become bored with repetition, the concepts and attitudes were repeated in many ways--by different models, in different terms, and in the context of different geographical and career settings.

*What all of this meant in terms of film production was that we had to find ways to make these ideas viable and to find adult models who were creative and psychologically mature and who could help students to come to know more about the world of scholarship and the intellectual disciplines and to also know how the process of intellectual discovery and of scholarship could become an integral and continuous part of living. From our reviews of the literature on creative adults and the prototype-model, we abstracted the following qualities to keep in mind as we selected the film models: (1) an openness to reality both within and without themselves and beyond this a seeking for a superior perception of reality, and a richness of emotional reaction; (2) an acceptance of self, others and nature which leads to humanitarian concerns, improved inter-personal relations, and a more democratic character structure; and (3) an interest in ideas and in intellectual pursuits indicated by strong motivation to learn, a theoretical orientation (particularly a willingness to deal with complex and philosophical topics), and an ability to think critically and carefully. The result of these open and accepting attitudes is an increasing flexibility, spontaneity, originality of response with more detachment from the group, more desire for privacy and independence and more resistance to conformity pressures.

styles and philosophies of life were shown in these films, but a common thread ran through them all--each individual was making use of his potentialities, was open to new experiences and ideas, and had a desire to work for human betterment. Thus, the theme of individuals shaping meaningful existences in a complex world was recurrent and was translated for a young audience as meaning that each individual must work out a unity between his personal development and the human milieu or heritage.

It was our belief that such films, focusing on life styles and personal philosophies, could contribute to the total growth as well as to the career development of able students in ways that typical career films could not. We felt that real people (with exemplary qualities), seen both at work and at leisure and in both the active and the contemplative phases of their lives could help students not only to understand themselves but to develop new visions of what they might become. Students who are capable of response must have something and someone to respond to. We felt such films would offer a kind of inspiration, learning opportunity, and level of reality lacking in the more two-dimensional career film which tends to feature abstracted representations of "the secretary" or "the engineer" in the active phases of their working days. A carefully created style-of-life film should express much of the impact and stimulate identification in the way a well-written biography does. In fact, films can add dimensions to human portrayal beyond what books can offer and, thus, foster a greater measure of identification on the part of young people with a model or models.* Dimensions of reality, offered by sight and sound, can add understanding to the patterns of living and of character presented by written discourse. It was our belief that students would be able to integrate multiple and concurrent impressions in significant and original ways, and that they will tend to voluntarily enlist in the enterprise of dynamic change.

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*Kagan has suggested " . . . that an individual may identify with a model . . . to obtain positive goal states which he perceives that the model commands." He defines identification " . . . as an acquired, cognitive response within a person (S). The content of this response is that some of the attributes, motives, characteristics

To give some assurance that learnings of these natures would occur, we designed the films as intellectual and aesthetic experiences. Film sequences elaborated upon, enhanced and clarified the spoken word--the dialogues, the soliloquies and the expositions. For example, the need for each individual to have an aesthetic diversion in his life, especially as this relates to self-awareness, psychological growth and potentialities, was discussed while the students watched the camera focus on the veinings in a leaf and then reveal the intricate pattern of darkened tree branches against the sky. We wanted to capture the imagination of our audience, to suggest meaningful commitments and to win them over to the intellectual enterprise. We wanted them to know that the ideas of poets and artists may penetrate where all else fails. To do this we not only alluded to ways that individuals find purpose and direction and proceed with independent patterns of discovery and inquiry, but we made every effort to increase sentient awareness and a feeling for ways that each moment can be lived more fully.

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and affective states of a model (M) are part of the student's psychological organization. The major implication of this definition is that the student may react to events occurring to M as if they occurred to him. [It is not assumed that these student responses are available to consciousness or easily verbalized]. Identification is not viewed as an all-or-none process. [It] . . . can vary in strength and there will be differences in the degree to which a student believes that the characteristics of a model, whether assets or liabilities, belong to him. In addition, the student may become identified, to differing degrees, with a variety of models." (Jerome Kagan, "The Concept of Identification," Psychological Review, Vol. 65, 1958, p. 298).

It was our belief that films could not only serve to integrate the cognitive (the intellectual commentary on the sound track) and the non-verbal (the visual impressions captured in filmed sequences); we also felt that by seeing and experiencing new values and behaviors, students might change. It was our aim that such understandings as self-sustained motivation to learn, a willingness to work on unusual problems and try out-of-the-ordinary solutions, and to become responsible to and for one's fellow man would be communicated. Thus students could perhaps understand our translations of the being concept as suggesting sensitive awareness of the world and a willingness to learn and experience on many levels and in many ways. And, similarly, the abstraction of becoming could take on primary meanings, such as the need to find direction in one's life and dedications to the larger society.

1. Selection of Film Subjects and Script Preparation*

The next step was to find individuals who exemplified, as far as we could tell from our initial interviews and from reading their books, the qualities we wanted to portray. Each model had many of these qualities, and as a group they exemplified all the qualities. Models were also attractive, pleasant people who had good relationships with others. We had found in our pilot work that in order to get students to think about the ideas introduced, we had to avoid presenting people who would be rejected on personal grounds. Beyond having the necessary qualities and the personal appeal, we tried to find individuals (and we feel that we succeeded) who could project their enthusiasms, involvements, warmth and attractiveness, and who could translate their often complex ideas into relatively simple terms. In other words, we chose people who could communicate.

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*The investigator, aided at times by staff associates and consultants, interviewed the models and prepared the script materials. She served in many senses as director-producer. (Portions of this chapter have appeared in the article, "The Career Film Comes to Life," Audio-visual Instruction, Vol. 8, No. 1, January, 1963, pp. 29-32).

These were the primary requirements, but there were other considerations as well. We wanted to present equal numbers of men and women who represented the major divisions--humanities, science, social science and the arts--usually found in a university or liberal arts college. We wanted to show creative people with varying personalities and temperaments--introverts and extroverts, activists and contemplators. We wanted to show people at various stages of development--a group of college students* in the first and introductory film--and, in the biographical films, the eight more mature subjects who ranged in age from the early thirties to the middle fifties. Finally, we wanted to show people who varied in renown from the recognized-in-the-community to the internationally famous.

With such guidelines in mind, the principal investigator began exploring both local and national sources, asking groups and individuals about men and women who represented professions or intellectual disciplines and who also showed self-actualizing patterns of development. Further screening of individuals was done by reading their books and articles, by listening to their speeches and by interviewing them. Since the decision was to choose only four men and four women and to present diversity in careers, life style and personality, there were, of course, a large number of potentially excellent models who could not be selected. Fortunately, all models chosen, with one exception,* were able to participate in the project and to spend the many hours that the filming, interviewing and script production demanded. We felt that the quality of each film would come from the quality of life of the individual to be featured and we wanted to present this as vividly and validly as possible.

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*In the introductory film, four college students discussed learning experiences that had meant a great deal to them. Peter Nye and Karen Drews referred to their involvement in the aesthetic world--Pete played his own composition and Karen sang a favorite folk song, while Susan Montgomery discussed mathematics and education in general, and Tom Rowland talked about his unwillingness to settle on a career choice until he had explored further, (until then he is "hiding out in pre-med").

To introduce the range of human involvement in the development of modern intellectual culture, each of the models was chosen as representative of at least one of these cultures. And, taken as a group, their interests (it was hoped) would encompass the spectrum, if not touch all the particulars, of human knowledge. In short, the models were chosen to broaden the horizons of career and knowledge and human growth possibilities for intellectually superior adolescents.

The models in the eight documentary-biographical films were chosen as representing certain qualities that Maslow had felt were indicative of self-actualizing behavior. Each individual is seen as creating a meaningful life without denying complexities. Each feels that he can shape his environment to some extent and is not merely a pawn of uncontrollable forces. Each is committed to his work and does not see his work as separate from himself but rather as an extension of his philosophy of life. Each is aware of self and simultaneously aware of the needs of others. Beyond this, the models are articulate and attractive, yet not so attractive that the students would see them as supermen and superwomen--beyond the realm of possibility in the sense that Hollywood creations are glamorized beyond hope of emulation.

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*A woman senator initially had agreed to participate in the project but finally had to withdraw for reasons relating to health and the heavy demands of her work.

In order to give balance to the series, we gave as much emphasis to the life style of women as to that of men. However, since one aim of the study was to break down stereotypes, particularly sex stereotypes, there was a certain reversal of traditional roles. Thus, we decided to search for virile-looking men who were also philosophers, artists, poets, musicians and humanistically-inclined scientists. The male models, then, were men who had achieved a balance of feminine and masculine traits. If one were to use the language of Jung, it might be said that these creative, self-actualizing persons were not so completely identified with their masculine persona roles as to blind themselves to, or deny themselves expression of more feminine traits of the anima. These men had achieved not only in aesthetic endeavors, but they were willing to reveal their aesthetic sensibilities. They were men who liked to write poetry, were concerned with human well-being, and enjoyed the arts. We thought that such masculine models who had achieved the Jungian balance of feminine and masculine traits would help the boys accept the more gentle and feminine side of their own personalities.

On the other hand, for the women models we wanted persons who would help to modify and reduce the typical prejudice against women scholars and scientists. As a result, we found attractive and feminine women who worked in areas usually considered to be masculine. We hoped by this means to show how such careers might be developed in ways that might be distinctly feminine without losing any of the usual masculine productiveness. In this subtle reversal of the stereotyped sex roles, we were taking into account the findings in the IPAR studies (see Chapter III, p. 58) which showed that highly creative men and highly creative women are more likely to share interests, attitudes and values than less creative men and women, who seem to adhere in their attitudes and behavior more closely to the traditional masculine and feminine stereotypes.

Even though we have suggested that the models chosen were selected as creative, productive and concerned individuals who in many ways transcended the usual sex stereotypes, we wanted to provide the flavor of human diversity as well as of common human qualities. Thus, we chose some models who were shy and introverted, while others were outgoing and extroverted. Some were contemplative; others were the more active doers. Also, some of the models were young and just beginning their careers, while others seemingly were at the peak of their careers.

The individuals who served as film models,* in the order that they were filmed in the series, were:

Eugene Petersen, historian and museum director for Fort Mackinac and the reconstructed Fort Michilimackinac, Michigan.

Mary Coleman, probate and juvenile judge in Calhoun County, Michigan.

Robert von Neumann, artist and University of Illinois professor.

Barbara Radmore, Oregon physician and specialist in radiology.

Kay Britten, a British-born singer, trained in classical music, who now finds artistic expression through folk songs (lives in Detroit).

Loren Eiseley, philosopher, anthropologist, writer and professor at the University of Pennsylvania.

Harold Taylor, philosopher and educator** with an interest in world peace, human welfare and the arts (New York City).

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*A further description of the models and a description of each of their films will be found in the appendix.

**The Harold Taylor film serves to summarize and bring into focus some of the general themes of the course. He stressed the ideas that every person must be responsible for his own education and that education should not be limited to the academic classroom but should include the arts and the nonsymbolic forms of learning. He stressed too that education involves more than passive study and contemplation, but active commitment to a system of values as well.

Anne Roe, a social scientist specializing in career theory and professor at Harvard.

After selection, six or eight hours were spent interviewing and talking with the potential models about their early lives, their careers, their life styles and their primary concerns. Most of this material was taped and developed into typescripts. These typescripts and the documents (books, articles, etc.) available were studied carefully in order to extract the major viewpoints of each model, as well as key qualities and behaviors which would help us accomplish two purposes. First, we wanted to portray the individual, his work and his way of life accurately; and second, we hoped to focus on each model in such a way that he or she became a part (integral but not redundant) of the larger pattern that we were developing. Although each film is complete in itself, the full pattern which represents a mosaic of qualities and behaviors emerges only when one sees the entire series of ten films.

The series attempts to capture and underscore certain qualities seen as common to all such individuals, as well as to portray the diversity and uniqueness of adults who have become creative and self-actualizing. Some of this integration is accomplished in the film which introduces the course. This film presents college students talking about what high school offered and what it might have offered and introduces the textbook, the idea of the four worlds, and the need for being aware of these dimensions prior to settling on an identity or a career. Further synthesis and accenting of key concepts is accomplished in the final film where the eight models, in a "small-world" type panel, discuss issues such as--what does creativity mean, how can it be cultivated, and what are the social responsibilities of creative people?

Idea sequences for the biography films were developed, and frequently visual sequences evolved, during these preliminary stages when we were soaking ourselves in the self descriptions and professional writing of our models. We enjoyed these tasks immensely. In some cases we went beyond developing an idea sequence outline and blocked in a script--comprised mainly of statements already made by the model. However, a factor much more important than such technical considerations as scripts and outlines was the fact that each model was someone whose ideas we enjoyed, whose approach to life we admired,and with whom our project staff identified in the very sense that we hoped the ninth graders would be able to identify.

2. Film Production*

The camera work began at this point. The camera man,who also had read background material and had sometimes actually worked on the script,saw his task as that of giving the "viewers a sense of admission into the private worlds of the subjects." Rather than letting them stand back, objective and detached, we wanted to give our viewers the same sense of involvement and participation in the lives of the models that we who had read, interviewed and visited them had. We wanted to generate feelings of sitting across the table from, walking beside, looking over the shoulders of the subjects. We wanted, through empathy and identification, to convey a sense of the total personalities of these people. We were not interested in a purely rational examination of an artist; we wanted to say, "This is Bob von Neumann, a very human, complex and fascinating person. He happens to be an artist." This is in contrast to the films, all too prevalent in film libraries, which present a sterile, dehumanized representation of an occupation--the "This is Mr. Brown. He is a Postman. Early every morning Mr. Brown goes . . . " approach.

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*Mr. Douglas Knowlton, 207 E. Main Street, Lansing, Michigan, a free lance film maker, was responsible for the photography and editing in this series and did a sensitive and technically excellent piece of work despite the limited budget. Capital Films, Lansing, Michigan, did the technical work.

What all this meant in terms of production procedure was that our camera had to work close in to the subjects and had to be free to move with them. Camera and camera man had to become a prominent part of the subjects' immediate environments and yet not impose influences which would seriously distort their usual patterns of behavior. Functionally, this meant that the camera would have to be hand held for most of the filming.

The subjects were not directed in the usual sense. On the basis of the script and shooting outline and a discussion with the cameraman, they would engage in some familiar and comfortable activity. The cameraman would observe and film. Direction was limited to an occasional "Would you please pick that up again?" Good rapport between the subjects and the cameraman was vital. With every subject, we were working within strict time limits: there was always the plane to catch, the class to be taught, the speech to be made. There simply was not time for a leisurely getting-used-to-the-camera experience.

Our "sets" were the natural habitats of our subjects. Usually we did not even allow them to straighten up their work areas as much as they would have liked. We adapted filming techniques to each new subject and situation. Also, as the members of the project staff became more aware of the capabilities and limitations of the film medium, the ways in which we approached the filming of a subject were improved.

Development of the films remained a fluid process, continually subject to reconsideration and reordering. After the processing and printing of the visual sequences (due to limited funds, we had to make use of almost all film footage), we began to re-think and revise. The visual sequences were shown to the models at this point, and the prior-to-filming idea sequences were again examined. A pattern was settled upon and the sound track was made. Working within this pattern, the model discussed his work, his dreams, and his concerns. For example, the historian tells how he feels about history and his desire to introduce it, through museum displays, to a public that previously was uninterested in its heritage. The film audience became museum visitors too, but with preferential treatment. They hear Dr. Petersen tell why and how he developed the exhibits. These statements--mainly voice-over--became the sound track.

We also remained flexible in other phases of the project (thus increasing our work load and the number of problems and frustrations). We made changes in the formats of the films, continually revising them as we became more aware of how the thoughts of our models were mirrored in their careers and how individual strengths such as verbal fluency and emotional depth could be best displayed. For example, we developed what might be most appropriately called a film essay format for the philosopher-anthropologist, who typically wrote and spoke in moving and poetic terms. Here the camera sought out visual stimuli which ranged from panoramic views of sea and forest to a minuscule eddy of sea water captured by rocks, and a solitary feather lying on the patterned sand. There was little human interference, except for studies of the philosopher looking out upon and deep into this nature "that is not as natural as it seems."

Within the wide range of formats there were certain constants. Films begin with the camera searching out the model in some significant aspect of his life. This is followed by a formal introduction of the model by the commentator

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*Due to the need for this key person to be fully aware of all themes and purposes and also due to fund limitations, the investigator served in this role.

Early in each film a voice-synchronized segment establishes voice-ownership--the model talks directly to the audience about some aspect of his work, some idea with which he is concerned. The singer tells why she chooses a song--"Simply because I like it." Such direct speech fades into voice-over, and vocal assertion becomes thought--often of almost a free association nature. We wanted to establish intimacy and an entre nous feeling, to be so close as to share thoughts and sensations. The commentator not only introduces the models but also uses commentary at a number of transitional points. Sequences are laced together, and transitions are made to the audience. Each film ends with an interview which shows the model in interaction with others--sometimes reflecting on his work, sometimes telling how his interest developed, e.g., recapturing key incidents of childhood or youth* and sometimes introducing other professionals in related areas.

While it is true that this flexible structure or means of proceeding allowed us to develop the kind of films we wanted and to portray the individuals as we desired, this very approach made the development of these films very difficult and at times it became a grueling trial-and-error process. The lack of rigid outlines, formal scripts and formula was only possible because the film subjects were extremely able (and usually professional) communicators and translators. Not only were they beautifully verbal, but the issues and events that they discussed were ones to which they had given a great deal of thought. They carried their inspiration within themselves and were "self-directing" individuals in every sense of the word.

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*Biographical data in the films is, of course, limited and, as a result, each student in the course is given a mimeographed biography of each model. As we used the films in the classrooms, we found that biographical interviews with the models, conducted by the commentator, were the most satisfactory of all approaches. In this situation, the model became more human and believable, and the focus on him as a person--the directness of contact--served to strengthen his impact as an individual on the audience.

D. Content Change: The Four Worlds Textbook

A major consideration with films, whether they come singly or in clusters of ten, is the matter of how they are used. During the year that we were developing our project, we showed some of the films experimentally, trying them out in the context of student discussions. This was done both by developing a pilot experiment in which four films were used in two experimental classrooms and also by bringing together clusters of adolescents to help us review film sequences and to react to format and commentary.* We tried out other instructional materials and approaches as well. We assembled and brought many supplementary materials into the classrooms--files of articles and pamphlets, lists of biographies as well as other non-fiction and fiction titles, and many magazines. Teachers experimented with ways of using these materials. The librarians also helped extensively with the project. They met with the teachers, discussed the major ideas in the program, and made a large amount of pertinent reading material available to the students.

We felt that it was vital that each student develop a background or context which would help him deal with issues and concepts in the films more meaningfully. With better informed students, the discussions prospered and all of us, teachers and staff alike, came to feel that accompanying readings must be part of any meaningful setting for the films. Rather than have the students do assignments, we decided that it would be more meaningful for the students to put their thoughts and discoveries into a semi-permanent and individual form. Thus, they were asked to assemble, from clippings and their own writings, a source book that would express their own personal view of the world about them. However, as we observed these books being made, we realized that many students had very narrow worlds indeed--some boys saw a world filled only with technology and some girls did not go beyond human interest stories and pictures of dogs and horses. The need was for a more adequate world view and a more systematic coverage and to supply this we set about making an experimental textbook to supplement the films.

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*We should note parenthetically that changes were made in many of the films after the formal experiment was completed, and that many of these changes were based on student reaction. Each student in the experiment wrote out his reactions immediately after seeing each of the ten films, and these comments, as well as those made by the teacher-counselors, were carefully studied.

Through the textbook, we hoped not only to introduce many important ideas and the outstanding men and women who had espoused them, but we also wanted to show that, as Williamson has said, "Man's myths, beliefs, conceptions and expectations do influence the form, direction and rate of his development."[28] In other words, certain individuals take an important role in shaping their destiny and the destiny of others, and able students should begin to contemplate such responsibilities. Williamson feels that counseling can be used " . . . to introduce the student to the possibility and desirability of anticipating and striving for changes both in himself and in his surrounding society. Planned and self-controlled changes are viewed as desirable in the individual and, through him, in his society."[29] We have felt that an experience with materials that allow and even ask for continual revising and reshaping can also suggest to the student the desirability of such flexibility of thought and responsibility of action.

In constructing the textbook, we did not want to present simply an agglomeration of ideas nor a roster of famous people. We wanted also to supply a pattern or framework which would help students see that certain basic unities were compatible with the diversity of ideas that they were encountering. Thus, the readings were organized into Four Worlds--the Natural, the Aesthetic, the Technological and the Human. Through these, the students were introduced to multiple aspects of the world, particularly the modern intellectual culture. In this way we hoped students would come to understand the ebb and flow of life, the intermittency and, above all, the meaning of being human. The textbook had structure--Four Worlds--and a built-in flexibility, since the 120 pages of multilithed materials were in loose-leaf format* which the students were encouraged to change and rearrange. Thus, through this experience in arranging their own private cosmologies, students might begin to understand the dimensions of the world and of knowledge.

Although we had already selected and assembled many major articles, we spent many more months preparing the textbook; its construction involved literally hundreds of hours of time. Through significant articles and statements, we sought to bring together--within each of these worlds--areas of knowledge, crucial problems and possible solutions. Added to this were biographical glimpses of men and women whose lives and actions were contributing to the arts, to science and technology, to an understanding of nature and to social reconstruction. We read thousands of articles and reviewed countless books, pamphlets and even non-books. Back issues of at least thirty of the better periodicals, extending over a span of three to five years, were studied with care. Articles were extracted from these periodicals, and the result was that we added hundreds more possible selections--more important statements on timely issues. Our search resulted in many large boxes full of materials, and all of us who were involved in the construction of the textbook had to agree that there was, indeed, a knowledge explosion, and that we were sitting right in the middle of it--in fact, we had helped to create it.*

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*These pages were $8\frac{1}{2}$ x 11 bond suitable for a three-ring binder. Each student was to be given in addition to the Worlds a hard-cover notebook and as many blank pages as he desired.

Our problem was then to make selections and reduce and synthesize the materials. In making our final selections of problems and ideas and choosing the men and women to be featured in the textbooks, we found that we could not always agree. But, we did agree that issues should be presented from many points of view. There were to be multiple alternatives and a balance between the pessimistic and the optimistic. We wanted to present the threat of automation, for example, and the promise of abundance; the problems of over-population and the prospects of positive evolution.

But in our attempts to create a textbook for all seasons and for all times (perhaps not an unreasonable goal considering that we were trying to present the world), we relied on more than articles from current periodicals and on more than extracts from books. We wanted the new book to show the variety of ways in which learning can proceed. Thus, materials of a more unusual nature were included, such as poems, cartoons and apothegms. It was felt that a book should be very serious and very light as well--tragedy should not be avoided nor should comedy. But, at all costs, blandness, dullness and tunnel vision were to be shunned. Magazines, such as the Saturday Review, manage to inform in a lively way, and we thought such an approach might be possible in the development of a book to use with young people. In order to make the textbook as appealing as possible, we asked an artist to illustrate it with portraits and decorative designs. The Four Worlds Textbook, although we hoped it had literary and artistic merit, was not finished in a slick style--in other words, it retained some of the qualities of a scrapbook. It was our feeling that these qualities might encourage the students, when we used it in our experimental study, to add clippings or their own compositions or drawings. We agreed with Hobbs and others that if students are to develop a personal statement of the world there must be in this cosmology "the built-in requirements for revision."[30]

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*A report film is being prepared which reviews the development of materials, the philosophy of the course, and shows the students (in classroom scenes) reacting to materials and ideas.

Unlike the usual textbook in which materials of a factual nature are presented to be learned, the Four Worlds Textbook was designed to provoke questions and to supply no easy answers. In a sense, we felt that perhaps the most important parts of the book were not the materials we supplied but the fact that we planned to give students an opportunity to fashion pages and to make comments of their own. With this in mind, we provided blank space on which the students were encouraged to add new material that they would develop or find. We also suggested that they make comments and criticisms directly on the pages of the text. And, as was mentioned earlier, the looseleaf format meant that each student could rearrange the pages as he chose. Thus, if he were to choose to omit a world, to arrange a world in an entirely new order or to add new worlds, he would be quite free to do so. A brown envelope was to be provided for rejected material.

In short, students were to be free to change, in whatever way they chose, the existing structure of the book--to add clippings and excerpts from magazine and newspaper articles they had found and which they considered relevant, to supply their own poems, cartoons, drawings, critical commentary, or to decorate with miscellaneous doodling.

We knew that it might be difficult for students to accept this degree of freedom and to utilize their time in ways that seemed meaningful to them rather than working through the specifics of an assignment. We also knew that, since textbooks have always been the sacrosanct property of the public schools, students might find it hard to make the book their own--to disagree with it, to write in it, to subtract from and add to it. But we felt that people, even young people, cannot learn to live in freedom and to be responsible for their own learning if they have had no practice being free and being responsible. All of this meant that our new program would be quite unlike traditional courses where students are presented with a textbook and where, in effect, the teacher tells them, "This is the text, you are to learn what the author says." The students in our experimental group would instead be told by their teachers, "Here is the text. Make it your own."

The book that emerged was essentially a series of montages. It resulted from, as has been indicated, our wide ranging encounter with periodicals and books, from a relentless shaping of long articles into manageable size (although ideas remained awesome) and from a rather impertinent attempt to balance worlds and to balance the selections within worlds. Each page was made up of a variety of clippings, drawings and typed excerpts. And it was these montages in multilithed version that were now ready for the students' combinations and permutations. A description, world by world, of the Four Worlds Textbook follows:

The Natural World

Thou canst not stir a flower
without troubling of a star.

Francis Thompson
"The Mistress of Vision"

This first world was, in a sense, a somewhat poetic introduction to ecology and was designed to lead students to consider the flora, fauna and natural formations of the world. It was also an effort to help them understand what happens when there is taking and exploiting without giving and understanding. Thus man's place in the universe, as well as his obligations for conserving, maintaining and improving it, were considered. Students were asked to think about such statements as Aldous Huxley's declaration: "We shall be permitted to live on this planet only for as long as we treat all nature with compassion and intelligence." However, the view of nature presented was not just of concern, but also one appreciation--of the wonders of the world of nature, its beauties and its delicate balance. These were presented through articles written by well-known naturalists and scientists; through poetry, both humorous ("I think that I shall never see a billboard lovely as a tree") and lyrical ("Silver bark of beech, and sallow bark of yellow birch . . . ."); through aphorisms and quotations ("Part of the allure of fishing is the call of an unknown bird, the sharp cry of a strange animal, or the mystery of a flower"); and through drawings and cartoons. The Natural World was shown as one of man's most precious resources, not only in the material sense, but in a spiritual, aesthetic and even moral sense as well. The names, ideas, and often the faces of such naturalists, scientists and nature lovers as Joseph Wood Krutch, Edna St. Vincent Millay, John Muir, Wordsworth, Thoreau, Rachel Carson and William O. Douglas appeared in this section.*

The Aesthetic World

> [Art] bids us touch and taste
> and hear and see the world.
> W. B. Yeats

This world was designed to help students understand that man, over the centuries, has created a world of his own which transcends mere physical existence. Sensitive individuals often find an easy rapport with the world of nature and may practice the art of adequate experiencing at which times, as Aldous Huxley observes, " . . . the most ordinary things, the most trivial events, are seen as jewels and miracles." However, engagement in the creative process--the fashioning and forging of art forms--painting, literature, music, art and architecture--is something different. From our previous research we have concluded that students rather readily concede that "Man cannot live by bread alone," but we have also found that an appreciation of the arts and the aesthetic world is not as common, and that most have not learned to be fully aware or to enjoy their awareness. It was particularly important, thus, for us to present artists as warmly human individuals. Thus,they read Louis Armstrong on jazz and Carl Sandburg's definitions of poetry. Other creators included Henry Moore and Frank Lloyd Wright, Martha Graham and Agnes DeMille. Added to the suggestions for direct experiencing and creating were discussions of the creative process and an introduction to art criticism. Excerpts from Bernard Berenson's Man and His World as a Work of Art are presented. Not only did we hope that students would come to better understand how art forms take on shape and why artists create, but that they would also see how one might approach completed art forms as an appreciator and as an individual with taste.

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*Twenty-five to thirty oustanding men and women are presented in each section.

The Technological World

The roar of progress deafens the
ear of conscience.

Brooks Atkinson

This section deals with the world that has emerged from the volcanic eruption of scientific intelligence in the 19th and 20th centuries. Here students meet the threats and promises of automation and cybernetics, survey the world peopled by machines and automations. The major problem presented is that of adapting our technology to human beings. Can Bacon's vision of a modern world--in which technological advances would serve man, releasing him from his servitude to manual toil and drudgery and thus allowing him to emerge as more fully human--become a reality? Or has technology turned upon man capriciously and,instead of freeing man, made him a servant to the machines? The central themes are presented as queries rather than as excoriations of machines and automation. However, there are solutions offered for consideration. It is suggested that progress lies not in the rejection of acceleration but in a proper respect for the possibilities of the mind. How can an enlightened man use technology to improve the quality of life,and how can he prevent it from despoiling the earth? Information and opinions on the dilemma of a human being in a technological world, on such questions as the "leisure explosion" and the new definitions of work, and on the new technology in education (programmed learning), are presented by Donald Michael, Vannevar Bush, B. F. Skinner, Carl Rogers and others. A number of cartoons show humorous (as well as not so humorous) vignettes of man,as he copes with or is outwitted by his machines.

The Human World

> No man is an island, entire of itself; every man is a piece of the continent, a part of the main; if a clod be washed away by the sea, Europe is the less, as well as if a promontory were, as well as if a manor of thy friend's or of thine own were; any man's death diminishes me, because I am involved in mankind; and therefore never send to know for whom the bell tolls; it tolls for thee.
>
> John Donne
> Devotions, XVII

In the Human World as in the Natural World,an ecological or interactionist view is presented. Man is shown as a part of nature, and relationships--to himself and to other human beings--are stressed. The message is that bridges must be built in all directions. Many of these will be new connections, and they must be created in spite of man's diversity.

The great social problems that confront modern man--abrasive human relations, racial tensions, over-population, poverty, unemployment, illiteracy and war--are all introduced. The question is asked again: Is modern man capable of dreaming of, and working for, a better life? Beyond satisfaction of basic needs, can he hope for self-actualization, for what Maslow calls an evolutionary breakthrough? The suggestion is that, by actively working for positive evolution, each member of the human family may become more fully human. But reaching full humanity does not come from supplying material goods. High consumption is not spiritual growth, nor is it the same as cultural growth. Students learn of other ways to grow from many teachers: the philosopher, the researcher and the social actionist. They meet these in many career roles, ranging from humanist and social scientist to humanitarian--Margaret Mead, Gandhi, Martin Luther King, Bertrand Russell, Norman Cousins, Eleanor Roosevelt, Loren Eiseley and Emerson. These are men and women whose belief has been that we must participate in a universal thrust to devise a rational and humane future.

E. Content Change: Enrichment Materials

The Being and Becoming Film Series and the Four Worlds Textbook were the core materials for the new program. We had designed these materials in such a way that each part was also an aspect of the whole and so that the total project had a continuous, but expanding and elevating, nature that could be described as spiral. However, since one of our primary aims was for students to become responsible for their own education and to take on the color of budding "lifetime learners," we wanted to supply many opportunities for students to discover their own sources. As was mentioned in the preceding discussion ("D. Content Change: The Four Worlds Textbook"), we arranged to bring large numbers of current magazines into the classroom and planned to allow students to use these freely. In addition, we made special arrangements with the librarians* in the four junior high schools for the students to have free access to books and periodicals.

In working through ways to have a large and continuous supply of new magazines in the classrooms, we found several sources. A small group from the American Association of University Women and a few other women who subscribed to a number of magazines agreed to make their back issues available for the students. In addition, a local news agency agreed to allow us to collect, on a weekly basis, the magazines they had not sold. All magazines were supplied with the thought that students could use them in any way they desired, including taking them home to read or clipping articles from them. Since we had found in surveys of equally bright groups in some of our earlier studies that many able students had few magazines at home besides Life or Look and the Reader's Digest, we felt that bringing many magazines to their attention (including a number of a scholarly or specialized nature) would perhaps increase the students' range of reading, and even increase their out-of-school basis reading range.

Beyond many magazines which would be available for the students, we also prepared four large file drawers, one for each experimental classroom, of articles and pamphlets--

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*The librarians in the four schools had been included in several of the planning sessions so that they would understand the purposes of the course. They were extremely helpful and had many good ideas as to how reading could be encouraged. The librarians were: Pauline Clark, Joan Lenon, Lucille Penniman, and Betty DeYoe.

the originals for the materials that were prepared for the textbook. Although it was not possible for us to get four copies of each article alluded to or reviewed, we did obtain many. Magazine publishers were interested in the project and were able to send us tear sheets of many of the original textbook articles. It was our plan that this reference file would give any student whose curiosity had been piqued by an extract or digest or review in the Four Worlds Textbook ready access to the complete article. In cases where we were unable to obtain originals, the librarians indicated a willingness to try to locate them in their periodical files. The librarians also planned to have other articles and books available on the main topics touched in the textbook and films.

In addition to the printed materials, three films were used as enrichment material in the experimental class. These films were used as introductions to the various Worlds of the Four World Textbook.* Each film was shown to the students before they began work on a particular World, and the film, as well as the students' discussion of it, served as an orientation to the World to which they were being introduced.

"The Hunter and the Forest," an eight-minute, black-and-white film made in Sweden, introduced the Natural World. The film is intended to increase sensitivity to the delicate beauties of nature. At the beginning of the film, a hunter is seen walking through the woods, gun in hand, and as he walks he remains oblivious to the beauties of the forest--trampling on flowers, ruthlessly breaking plants, and seeming to be concerned only with finding an animal to kill. However, he soon is caught in a storm which forces him to concentrate on his surroundings. At this point, the beauty of the forest becomes so apparent that even the crass hunter begins to see it. If the film-viewer has not been aware up to this point of the beauty of the forest--and of nature--only the most insensitive will remain unmoved by the end of the film.

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*An appropriate introductory film for the Technological World could not be found.

The Aesthetic World was introduced by a film called "Fiddle-De-Dee," a five-minute color presentation. An impressionistic creation, the film simply shows colorful objects, such as balloons, and the total effect is similar to a non-objective modern painting.

"The Roots of Happiness," which served as an introduction to the Human World, is a twenty-three-minute, black-and-white film. It shows two poverty-stricken families in Puerto Rico. There is little love in one of the families, and the children in that family are sullen and aggressive. But the other family, in spite of their poverty and the squalid condition of their environment, does manage to be a loving family, and as a result the children are happy, loving and warm.

All of these films* were intended to be "experiences in themselves"; i.e., the students were to respond to the beauties of the forest themselves rather than simply observe the hunter's response; they were to respond to the color of the art film as anyone who looks at a painting should respond; and they were to feel the spirit of love (and the absence of it) in the Puerto Rican homes.

Besides working out ways to provide many materials for reading and study, our staff developed extensive bibliographies, using as a core the lists which we developed in the pilot study. Files of annotated reference cards to biographies were compiled (with the help of students and librarians). Generally,works were chosen which emphasized the lives of men and women who had made positive contributions to mankind in the arts and sciences and through humanitarian work. Other non-fiction,as well as fiction, was also listed and available. As can be seen, it was our plan to encourage reading of all kinds, particularly that reading which would introduce students to new sources and to patterns of reading that would be durable--i.e., last all of their lives.*

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*"The Hunter and the Forest" is distributed by Encyclopedia Britannica; "Fiddle-De-Dee" by the International Film Bureau; "The Roots of Happiness" by the Mental Health Materials Center.

F. Program Aims as Realized in Curriculum Materials and Approaches

1. Education Redefined

Discovery of self and world--steps toward self-actualization: Materials--letters, the textbook, and film commentary--were developed to inform the student that the fundamental aim of the course was for each to discover himself and to increase his awareness and understanding of the world. In the introductory film, the commentator talks directly to the students,and they are told that if they want to understand other people,they will have to understand themselves. They are told that "self-awareness" is part of such self-understanding. However, such statements are not intended as exhortations but,instead,are given simply as suggestions. Excerpts from theoretical materials,as well as personal testimony from the models,serve to explain what finding an identity and becoming self-actualized can mean. Selections from Erich Fromm, Abraham Maslow, Rollo May, Carl Rogers and other humanistically-oriented social scientists were used in the text and film commentary to give the students insights into the styles of living and concepts of man involved in the psychological orientation of being and becoming. Students are told that this is to be the orientation of the course, i.e., that each is to be aware of himself and to learn to become himself in the most complete sense of the word. It is suggested that such self-fulfillment could be cultivated by both openness to this inner self and by openness to the outer world. As the commentator put it in the initial film, "This course--the films, the textbook that you develop--will expand your knowledge of yourself and of the world."

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*Beside materials developed for the experimental course, the usual career materials that were used in the control group, and in regular curricula, were also available to the students in the experimental group.

The issue is not only one of communicating understandings and aims to the students; we also want teachers to understand the frame of reference and the psychological orientation as completely as possible. A five-page bibliography, entitled "For Competence and Compassion," was prepared for teacher use and plans have been developed for discussion of these ideas in teacher meetings. A number of the books that provide important insights into the course were to be made available, and teachers would be able to borrow Loren Eiseley's The Firmament of Time,[31] Erich Fromm's The Art of Loving[32] and many other materials. Each teacher was to be given a copy of Donald Michael's Cybernation,[33] as well as a number of pamphlets and much mimeographed material (including comments from Anne Roe and Joseph Samler to provide insights into the approach that this program is taking to career development).

None of the material for the students has been prepared for use in the usual textbook fashion, i.e., to be learned as presented, but rather the plan was to offer it for the perusal and the consideration of the students. Our thesis has been that if students can be encouraged to exercise choice and to think creatively about their own lives, then we would foster self-actualization. In this process, we have been particularly concerned that students who take the course not just confirm themselves as they are or accept the world as it seems to be, but rather that they come to see both in the process of becoming--something more and something better. We hoped they would begin to understand Kant's statement that education is not for the present but for a better society. Thus, they were to be given many insights into human potentialities. They were to contemplate and discuss ideas such as the observation made by the natural scientist, Loren Eiseley, that it is "the man who learns to step outside the intellectual climate of his or any age [who] has taken the first step on the road to emancipation, to world citizenship of a higher order." A similar view, but from another frame of reference--humanistic existentialism--expressed by May, was also included. Through the eyes of May and other philosophers, it was our hope that students would see that man is the being who has to be aware of himself, be responsible for himself, if he is to become himself, and that this self-consciousness implies self-transcendence.[34]

Student responsibility for his own education, acts and statements: Through the text and film commentaries, our efforts were to communicate to the students that each was to be responsible for his own education. In the introductory film, four college students* indicate ways in which they had participated in meaningful learning experiences when they were in junior and senior high school. Pete talks about a group of friends who began to create artistically in various ways and to talk about their work and the arts "not only music, but poetry and novels and art." Sue tells about a group of eighth graders who met after school with a teacher "who encouraged discussions and reaching out for new ideas." She appreciated particularly finding out "the very diversity of things" and that there was more to knowledge than "the things that we were required to learn." Such statements about an approach to learning are later to be reaffirmed by the teachers of the course, both in oral discourse and in their behavior in the classroom. In contrast to the idea of "giving" students their education, we wanted to show students how to educate themselves--how to direct their own learning, set their own standards, define their own goals, and choose their own directions. As Nietzche observed, man should stop letting his "existence" be "a thoughtless accident."

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*Karen Drews, Reed College; Susan Montgomery, University of Michigan; Peter Nye, Michigan State University; Thomas Rowland, University of Michigan.

Through the descriptions of socially contributive and responsible adults in the text, in the biographies which were to be made available, and by the exposition and examples to be supplied by the style-of-life films, our plan was to introduce individuals who have assumed responsibility for their own education and their own lives. The film series makes it possible to disclose to students the behavior of autonomous adults who decide what they want to learn, who discover idiosyncratic ways to pursue knowledge, and who have sufficient time perspective to envision how they could use this knowledge in the future. In addition, the series was prepared to give insights into both the active and contemplative aspects of each model's life. Models are shown as aware of the world and relating to it,and also as people who are aware of themselves as they undergo these experiences. Thus, the filmed sequences would, when shown, introduce students to adults as they go about their day-to-day life and the voice-over comments would help the students to become aware of each model's introspective understandings of himself as an experiencing individual--how he sees himself approaching tasks, storing information, relating aspects of knowledge one to the other, and finally retrieving his learning when he is ready to use it.

Beyond the examples of self-direction in education which we sought to demonstrate, the plan was to offer students an experience in such an enterprise through the flexible (loose-leaf) nature of the textbooks and other opportunities for self-determination such as outside reading. Each student would be asked to participate in designing his own world. Directions, in the form of a letter to the student, accompanied the Four World Text, encouraging each, as he used the book, to delete, add to, reconstruct, and rearrange the materials as he might choose. In the discussions which were to follow, students would be allowed, thus, to pursue the matters that were of interest to them. We prepared no lesson plans which would restrict discussions to one topic. Instead, a number of topics would be suggested, and even here there would be freedom to choose something outside the suggested range of responses. Similarly, lengthy bibliographies were prepared (suggesting, particularly, biographies to read) with the proposal to the students that they select from among these books or choose other materials to read and that they report on their enterprises in any intelligent and responsible way that they might desire.

Education as a continual and integral part of living: As a means of realizing this aim--presenting education as a way of life and living itself (a redefinition of education)--we made the goal explicit to the students. At the outset of the program, via the introductory film, the commentator tells the students, "Probably school will never mean much until we learn that learning is . . . related to real life and not just a set of exercises. . . . " It is suggested to the students that they would learn from the contagion of someone else's involvement, from hearing a statement on a record, from books that carry one behind the scenes, and from engaging in new ways of looking at something. For example, they are introduced to the sweep and grandeur of the living wilderness, as well as made cognizant that the power of life and death on this planet now lies in man's hands. Through the photography of Ansel Adams and the stirring words of Nancy Newhall:

> " . . . to know through every sense of body, mind,
> heart, . . .
> through every note and modulation
> of this instrument
> we for a time inhabit--
> the great experience that is matrix of all others.
>
> "Shall we not come as pilgrims to these sanctuaries?
> limit, where need exists, our numbers,
> that each may find a singing solitude and pass
> free as a cloud's shadow?"[35]

The mode of the films is style-of-life, and the effort is to show all aspects of an individual's life as interrelated--work and play can be indistinguishable. Knowledge is disclosed as never compartmentalized but, instead, as having impact in all areas of living. The models which we selected--the kind of people they are--contribute to these understandings, since all are not only immersed in, and fully committed to, creative development in their own fields, but each is also deeply concerned with the problems of the wider world. Through these means we hope to give students an understanding that the world is never static but is instead a dynamic pattern which each individual is continually shaping.

The source material out of which the textbook developed was also to be available in the classrooms. Much of this is made up of magazines and books that are usually read (if at all) by students in "free," not school, time. Our effort would be to encourage much free reading and to help students begin to read with discrimination. Thus the course would introduce them to a number of magazines of literary merit and to journals of critical commentary. Not only are excerpts and reviews from articles in the Saturday Review, Harper's, the New Yorker and similar periodicals used in the textbook, but we intend to make issues of these magazines available in the experimental classrooms.

In planning this program, we avoided the use of the usual textbooks for several reasons. Perhaps the most important of these is that textbooks are not read outside of school by either young people or adults. It seems to us that if we want students to become lifetime learners, one of the best ways is to induce them to sample kinds of materials that they would enjoy reading the rest of their lives: good magazines and good books. We are further convinced that reading must be--if the skill is to flower into talent--free ranging and self-nurturing. Answering questions at the end of the chapter in the textbook does not cultivate such virtuosity. In fact, "filling in the blanks" may smother all urges to read further. For the textbook-workbook style and format rarely leads the student on to question (the mark of the astute scholar) or to disregard or to elaborate. And by the very nature of their pedigree, such materials do not introduce the student to the convictions, the artistry, or even the prejudices of those who move and shape our society.

We feel that the daily assignment is, in many ways, as inimical to lifetime learning as the textbook. In our effort to suggest ways of working that would evolve into adult, out-of-school, continuous learning practices, we felt it was necessary that students come to understand the unfinished nature of all learning. Day-to-day assignments may easily result in feelings that when the chapter is finished, and the unit is out of the way, the learning is completed. Students often do not realize that individuals who continue to learn often ask the same questions and plumb further depths of the same topic all of their lives. To foster the idea of continuity and to create a sense of the unfinished nature of learning, we suggest that any and all Worlds in the textbook be re-visited at will and that reconstruction continue throughout the term.

Students also are to be introduced to learning continuities through the film models who continually reconsider and revise as they proceed with their activities. Some models express, in their film commentary, the pleasure such continuity gives them. For example, the well-known Harvard psychologist, Anne Roe, comments, "One of the wonderful things about research is that you never come to an end of it. You always find more questions to be answered." Robert von Neumann, the artist, views the process of involvement in the arts similarly, "Once you've achieved the immediate goal of inventing a form and investing it with a personality, a design personality--it has planted the seeds of the next experiment." Eugene Petersen, the historian, expresses this idea too, when he says that learning is a way of life--"a continuing thing, a process of having challenges before you and meeting these challenges." And Dr. Petersen continues: "I have always thought that as far as my life was concerned, I would never stop learning. I would always be involved in a search for truth. As one challenge was met, another challenge would present itself."

A basic educational premise which we had accepted prior to building our new program was that learning experiences should be continuous and ever-enlarging, spiral in pattern. This meant that certain themes would be restated again and again in different ways and from different viewpoints. In the films, this was accomplished by showing the eight models discussing similar themes from the vantage point of their particular styles of life and specialized knowledges. Themes were not only elaborated in different ways by the eight models, but also by the people whose ideas appeared in the textbook and other reading materials. In the films,we made the effort to move from more concrete and personal presentations to higher and more abstract levels. Thus, the idea might first be presented in a simple and explicit form. On the next encounter, the same idea might take on a poetic or aesthetic form. The early films show museum reconstruction and scenes in a probate court, while a later film seeks to engage students in a philosopher's conception of man's evolution. We wanted the students to come to understand life in the terms Loren Eiseley uses, ". . . .as a constantly flowing thing, a thing adjusting to multitudinous environments, something which is always moving from the past to the present."

Education, self and knowledge as "open" systems: The idea that education can be creative expansion, as well as continuous and integral to life itself, was not only to be presented to the students but to be demonstrated to them in a number of ways. Students should see that it is important for everyone to continually look and gather and absorb, as Robert von Neumann reflects, "so that . . . the mind [becomes] a sort of treasure house which will never leave you without ideas." Each model, in the process of maturing, had become both a more complex and a more unified person, and we are able to show this as well as other developmental patterns, particularly through the biographical interviews at the close of each of the eight style-of-life films and in many of the voice-over comments.

The commentator emphasizes the open system in suggestions to the students. They are told in the introductory film that "education is not confined to the four walls of the classroom or the hard covers of the textbook." With the new kind of text, students would be encouraged to come to a new understanding of textbooks--here was one that would be perenially in a state of becoming. Since the student would be the author, he would have to constantly be open to possibilities; his loose-leaf book would be continually revised rather than completed by the page or section as lessons are finished in typical textbooks. In the discussions, teachers would add further--by their questions and suggestions--to the ideas and alternatives that students glean from the films, text and their own explorations. Students thus would come upon many attitudes and values which could give their lives wholeness and coherence and might render the projections of a life-to-be-lived in more human and desirable terms. Making a rather early career choice is not compatible with these open plans for living, and we suggest in the films and the text that students should continue to explore and to learn and thus become educated.

It is our premise that by remaining receptive, a student can deal with more of the outer as well as more of the inner world. The opening words of the introductory film are, "Awareness--openness to all that is around us--this helps us to live richly and completely." We want students to experience the color, the nuance and the reality of each moment but not to forget that these moments lead into the future. Thus, we do not want students to reach closure, to feel that their questions have been answered and that final decisions about life style and careers should be made. Instead we want them to discover many important questions that they would continue to ask throughout their lives, to realize the implication of May's statement that "The significant tense for human beings is . . . the future. . . . "[36]

However, the open mind is not enough if the appropriate learning skills are not developed,and if the student is not introduced to realms of knowledge and meaning. As a consequence, the commentator notes that the need is for "an open mind but not an empty one." Thus, the new textbooks would bring Four Worlds to the attention of students who would have often known aspects of only one or two of these worlds. Our earlier research had made us aware (through the study of tape-recorded discussions) that students are quite naive with respect to problem solving techniques, methods of probing and inquiry, ways of making a point, and of listening skills. We also realized that even the parameters of what could be known--about theories, disciplines and careers--are not generally known by students. Challenging career possibilities, especially in terms of the emerging disciplines and new combinations of the areas are not generally known by teachers or discussed in the usual occupational materials. However, it is possible through the films to suggest that the array of possibilities, especially for gifted individuals, is varied and abundant.

2. New Learning Skills and Approaches

Self-selection of areas and problems: Through the materials which we developed, our plan was to help the students to understand that making their own choices would contribute to their interest in learning and the effectiveness of this learning. We wanted them to recognize that learning proceeds slowly and faultily unless there is self-involvement, and to contemplate the meaning of Kierkegaard's statement that a particular truth cannot be seen unless one has some commitment to it. We felt that by presenting a number of value systems and styles in the films and many alternative solutions to the issues in the text that students might come to recognize and clarify their own thoughts. The freedom to choose, we held, would be fundamental to the success of the program. As Hegel once commented--the history of the world is none other than the consciousness of freedom--and students who formulate their world views must also have a feeling of freedom.

We also hoped that students, out of these exposures and possibilities, would find new commitments and raise new questions that would seem vital but of which they simply had not been aware before. It is our general view that the most interesting topics for students are ones that are of basic importance to all human beings. We wanted students to reflect on this and thus we recorded Sue, in the introductory film, telling about junior high school students discussing "Whither Mankind" and the commentator reflecting that students "want to deal with important issues."

Learning to think in divergent, flexible and creative ways: At the outset of the course we indicate to the students through the letter and the introductory film that they could and should innovate with and add to materials and ideas which we prepared. The models show by their unusual and individual treatment of ideas and patterns of work that they do not feel held to a conventional reenactment of the typical pattern of their careers or to the usual sex stereotypes or to the least common denominators in leisure and in entertainment activities. In all of their interests strong and individual tastes are expressed. Barbara Radmore, who is a pianist as well as a physician, remarks in her film, "My music is . . . for myself. I like symphonies, but I'm afraid only classical symphonies, not the modern and the dissonant. Opera I love--Verdi, Wagner, Puccini--everything about it--the soloists and the choruses and all the little incidental parts that aren't even supposed to be great or important."

In addition to the individuality expressed by the film models, the biographical sketches of outstanding adults in the textbook show a tremendous diversity of value systems, thought patterns and life styles. Finally, the ideas presented express a range of world and philosophical views --construction versus destruction, humanity versus inhumanity. Students would be asked to weigh such alternatives as investment in space exploration in relation to the needs for the humanization of the earth, and whether or not they would hold military developments to be related to human progress.

We planned to create uncertainty and even controversy among students by presenting alternative solutions to many crucial issues and to ethical, moral and philosophical matters. We hoped students would add additional dimensions, come to new decisions, and discover new problems. In the introductory film the commentator suggests to the students that they try out "new patterns and arrangements and ideas" and that they might be creative in other ways such as having a creative discussion in which they would listen to "many points of view." There were to be many opportunities for discussion of a free and unstructured nature, in what we have come to term the "conversational dialectic," in addition to the freedom to alter the text in idiosyncratic ways. All of these approaches have been incorporated in our course with the thought that freedom to pursue ideas independently and to "brain storm" in a group would broaden the base of self-conception for each student. Since we had previously concluded that complexity and an enlarged awareness of self and world is a mark of the mature and healthy personality, we wanted to provide students with opportunities to grow in such a way that this increase in range and freedom and complexity would be fostered.

Learning to generalize, abstract and deduce principles: At all points in our construction of materials and in the way that we set the stage for classroom discussion we tried to demonstrate that unity in thinking could proceed simultaneously with the development of diversity. We wanted to encourage students to ask questions and ask them in meaningful ways--as hypotheses. We also wanted them to become orientated toward the future and to think in terms of transcending the boundaries of time. They should understand Nietzche's statement, "Man is the animal who can make promises." To accomplish this the text and films suggest that there is much to be done and much to discover--many questions to ask and many ways of asking them. In such a context each student should come to see the development of inquiry skills as part of the task of becoming educated. As Suchman reports after extensive studies of the inquiry process, "The operations that promote discovery include not only the acquisition of data through search but also the organization, transformation, storage and retrieval of data as well."[37]

The films, the text and other reading were developed to give the students contact with ways to ask questions and to give ideational patterns to knowledge. In addition our plan was to give students an opportunity to have free discussions on important questions and thus give them practice in dealing with such matters. All students should be helped to discover certain basic structures of knowledge --underlying principles that relate particulars of knowledge to the whole. Theories and basic issues in many areas of knowledge are introduced in the new materials. In the film, the models discuss the unities of thought which they feel underlie their entire learning endeavors. As Barbara Radmore, the attractive radiologist from Oregon, sees it, "Actually, medicine has become so complex that it is essential to sub-divide it into further specialities. But, because the human body is still the primary factor for medicine, it is essential to incorporate all this knowledge back again into one complete whole." Eugene Petersen carries the idea of unity beyond his own field to include the whole of knowledge, saying, "History is just one aspect of man's search for the truth."

We have indicated that the films and the film models would introduce the students to various ways of organizing knowledge and to a number of unifying concepts, and the textbook would introduce them to at least one way to order the world of knowledge--into four areas. These four Worlds are shown as both separate and integral. It was our plan that, although some of these interrelationships and unities are pointed out to the student, there would be others that he would discover or invent.*

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*Freud has described the neurotic person as one suffering from fragmentation. Many pressures of modern life, including the discreteness of the areas of knowledge, contribute to man's alienation from himself. An increase in knowledge without an understanding of how to relate one element to another can easily increase insecurity and perhaps cause the student to repress awareness (including self-awareness) as a protection against reality.

This matter of unities is also concerned with the interrelatedness or ecology of knowledge (another aspect of the re-definitions of learning and knowledge). The film models demonstrate this idea, in that they not only are specialists, but gifted generalists as well. The philosopher may be a specialist in his field but he need not--in fact, should not--be unaware of the relationship between philosophy and the arts, the sciences, and the problems of the human world. The models thus would demonstrate to the students that it is not enough to be a specialist, nor is it enough to be a generalist--in the modern world one must be both. And the Four Worlds Textbook, with its division into the Natural World, the Technological World, the Aesthetic World and the Human World, is planned to give the students one pattern for viewing the intrinsic unities of knowledge.

Learning to test hypotheses and to think critically: It has already been noted that among the directions (particularly in the film commentary and in specially prepared parts of the textbook), there were many suggestions to the students that their questions have focus and be well-formulated, that they take on some of the aspects of hypotheses. In other words, our hope was to induct students into scientific method and problem solving. Across the disciplines--in the humanistic studies, in the social sciences and in the sciences*--students should be helped to discover that there are certain standards and norms that scholars generally use in their quest for knowledge. They should be forced--gently--to an awareness of their clichés and a re-examination of their stands. They should come to see that the assertions and statements they make should be as solidly grounded in objective evidence as possible--evidence that is accessible for others to examine. Students need to be aware, as we feel our film models demonstrate, that inferences can be logical and that concepts can be precise and clear. Such knowledge perhaps will cause students to examine their own stands and perhaps to see that, as they make statements which claim objective grounding, that these should be logically consistent with each other. Students should also recognize that such thinking and examination of premises and ultimate choices is hard work. The films make it clear that the film models like their work and also that they invest much energy and effort in it. Kay Britten, the British-born singer, comments with feeling on the intellectual effort that goes into the formulation of a concert: "A concert isn't just a mishmash of songs that you throw together. It must be a whole, it must be balanced and organized."

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*It should be noted that although there are scholarly standards and a rather general inductive approach used in most disciplines, Taba et al. (who has recently examined the effect of training on the development of thinking) have pointed out that models and processes of thought in social science differ from those found in science and mathematics, and it is therefore "necessary to postulate different strategies of conceptualization and thinking in each major discipline." (Hilda Taba, Samuel Levine and Freeman F. Elzey, Thinking in Elementary School Children, Cooperative Research Project No. 1574, U.S. Office of Education [San Francisco State College, April, 1964], p. 26).

The films make direct suggestions to a projected student audience that all can learn to think more carefully and clearly. The commentator notes that "No matter how objective we think we are, we have 'blind spots' and 'tunnel vision' and prejudices . . . . This is one of the reasons it is good to work with someone else. They can say, 'Now, watch your prejudices!'" By using the classroom as an open discussion forum, the suggestion is that students can learn the dialectic of scholarship. Here is an opportunity to make their assertions (and the supporting evidence) public and exposed to the criticism of their peers. We hoped that, by encouraging logical examination of premises and of evidence, students in the experiment would remain open to further investigation and not accept a belief or point of view too quickly or lightly. They should begin to see that each issue takes thought, that the scientific method is more than a technique.

The models demonstrate the deliberation and care needed in responsibly undertaking all endeavors. Anne Roe, the Harvard psychologist, in reporting on her long term investigations of the relationship of childhood experiences and the development of different kinds of interest says, "It turns out that the matter is not so simple as the diagram implies. But this is just the beginning of research on this subject . . . it will take many years of work by many workers to establish the full nature and extent of the relationships that exist." Our task was to give the students basic skills that are needed in the pursuit of any intellectual discipline in order to grasp intellectual constructions (adeptness at recording and representing ideas is not enough). Mary Coleman, the charming Michigan judge, tells and shows visually the great care that she takes in assembling the background information and the facts in every case that comes before her. She notes that there are always several recommendations or possibilities (hypotheses) and that these must be studied--commenting, " . . . there isn't always one obvious answer to a problem."

Developing commitments and making decisions: Although it is our aim to present--in these materials--learning and scholarship as processes and not as a completed state of affairs, we also try to make it clear that, in many situations, action must be taken and commitments made. Members of the applied professions must act with what knowledge is immediately available, and thus we show our woman judge (Mary Coleman) developing youth programs and instituting mothers' classes to prevent juvenile delinquency, our radiologist (Barbara Radmore) making diagnoses to guide medical treatment, and one of our philosophers (Harold Taylor) advocating a world university as a step toward peace. Similarly, our representatives of the "creative" arts--a singer (Kay Britten) and a silversmith-sculptor (Robert von Neumann)--are concerned with knowledge of the traditions and history of their arts and with a number of "theories," but we present them in the actual process of creation as practitioners, not as scholars or theorists. In other words, the film models are shown acting upon their commitments and convictions. As Harold Taylor expresses it, "I believe . . . that anyone who has a set of ideas he can claim as his own should act on them, and unless he does act in the way that he thinks, he is less of a man than he should be."

Most of the models combine in various ways qualities of the moral philosopher, the scientist and the practitioner. They bring their training into focus and each takes on intellectual and ethical positions. In a way, each exemplifies what Tillich has called the "courage to be an individual." We hoped that the students would come to understand with Tillich and with the film models that courage opens the way to being.

Each model is not only actively involved in his own education, but each also expresses a special interest in the education of all our citizens--for a better future society. Several are optimists who feel that it is technically possible for us to create a world of peace without exploitation and human misery. But they realize that this would take much effort and unstinting dedication.

We hoped by these means to show students that the intellectual quest involves more than passively acquiring facts and ideas, that it involves--in the more mature human beings--ethical and moral commitment and a willingness to take social action. As Kay Britten says, "I can't even think of life without being totally involved, totally committed to something that I believe in and which demands of me everything that I have to give, that I have to bring to it." The educated adult in our text and films is not shown as a creature with simply a large fund of information, but rather as one who not only understands the process of critical thought and scientific investigation, but beyond this is an individual who has reached certain conclusions and has a rationally derived value system. We hope in these various ways to encourage those who use the materials to take stands and develop a sense of becoming--to be responsible in the sense of personal integrity and dedication and, in addition, to respond to the world of other human beings and to the natural world.

3. Changing the Content and the Materials

Introducing great ideas and outstanding people through primary sources: Students were to be told that the new program would be different in many ways from the usual text-recitation classroom paradigm. We have already mentioned that education is redefined in terms of the responsibility of the student and that learning is presented more as a process based on scientific investigation and on direct experiencing than on the memory of facts and precepts. As the moderator for the series tells the students, " . . . students are responsible for learning. You can be blind in an art gallery, and you can be deaf at a concert, because beauty is in the eye of the beholder." However, no matter how eager the student is to learn and no matter how well he has mastered the skills of learning, he will not become educated if the content to which he is exposed is inappropriate, insufficient or inaccurate. The student of today needs not only the old knowledge but also the new which, many times, is different in kind. In an education for tomorrow we must all be concerned, as Drucker says, " . . . not primarily with economic matters, but with basic values--moral, aesthetic and philosophical."[38]

We feel that students should be introduced to seminal ideas (including the theories, problems and conditions of contemporary culture) and high level achievement in the intellectual disciplines and that they should come to recognize these as more valuable than shallow and stereotypical thinking and opportunistic behavior. We believe that too often education is indoctrination in facts and techniques and that the ultimate purpose of education as both preparation for, and as a way of, living are either not mentioned or remain unclear to the students. Thus, careers can be studied in a superficial manner simply by listing the number of years of preparation, courses to be covered, and eventual economic rewards and with no consideration of the psychological and sociological implications--how they contribute to the culture and what they may mean to the individual in terms of self-development. We feel that by introducing these larger considerations and increasing the awareness of purpose, students would be less frustrated, learning would be less mechanical--more economical, more exciting and more effective.

These ways of learning and the broadening of the content were to be introduced to the students through many approaches. The films were designed to help students come behind the scenes and to follow the thinking of men and women who are observing and vocalizing their own thought processes. As much as possible, we wanted to portray each human being as emerging and becoming. The excerpts to be presented for reading also were designed to introduce students to dynamic concepts--the evolutionary nature of their surroundings and their culture as well as crucial issues. We did not want our materials to be primarily passive and conservative, a mirror of what "is," but rather to communicate the idea that knowledge is continually in process. By seeing men and women involved in the creation of knowledge and art forms, students, we felt would begin to see themselves as critics and generators of knowledge who did not deny such subjective aspects of living as intuition, insight and poetic perception.

We hoped to organize and present the content, the models, the ideas in such a way that criticism, philosophical synthesis and ethical speculation would not be stifled but rather would be shown as valuable and possible. We were fully aware that the demands for specialization and even the concern for function and process could divert students and even adult scholars and professionals from seeking solutions to the major dilemmas of human existence and behavior. We wanted students to meet people who assess the value of their own achievements and come to see scholarship broadly as a socially useful tool and not just as a laboratory technique nor as an esoteric exercise in hedonistic self-gratification. We wanted them to come to understand man in the broadest sense, to find that there are many ways human beings reveal themselves--through art, literature, philosophy; and that there are many ways we can study human beings--disciplines that give us insights into cultural movements and social changes. We wanted students to see that work in the intellectual disciplines can be directed by values, by a more unitary view of our culture, and by heightened consciousness of themselves.

Communication on the level of images demands intelligence and wisdom but not encyclopedic knowledge. Even an elementary introduction to principles within a discipline--through a paragraph, poem, or essay--can help students to give shape to some inchoate concept that could not have been formulated otherwise. Without introduction to such primary sources, schooling can contribute as much to intellectual and emotional impoverishment as to stimulation and enrichment. As Ackerman has noted, "It is not even essential that the source of such inspiration be properly or fully understood in the terms established by experts in its own discipline; it is enough that it should inspire."[39]

Correction of imbalances: Although our means for providing a balanced view of our culture were rather primitive, we felt it was imperative that we suggest such a need to our students and that at least in several ways we attempt to correct distortions and omissions in the knowledge and the intellectual culture that is being transmitted to students through current texts and the public media. We would agree with Mead that "Overemphasis on one part of knowledge, on one sensory modality, on the shells men live in rather than the life they live there, on sanitation rather than beauty, on length of life rather than quality of life lived, could be listened for and watched for, and corrective measures taken speedily."[40] Beyond an attempt to give students a more complete and better balanced view of today's world, we wanted to have them begin to consider needed changes, to evaluate their society. Thus, they would be given materials to help them see science not only as a vehicle of liberation, but also to see it in terms of destruction, exploitation and planned obsolescence.

There seems to be little doubt but that scientific knowledge is introduced to secondary students more effectively than the humanistic--the arts, history and literature. Too often man's finest efforts lose their richness and vitality in the secondary source books of the secondary schools. The need is for direct experiences with the creators and with teachers who read and contemplate and enjoy ideas.

It also is generally known that there is little effort in our secondary schools to bring about rapprochement between the two cultures--humanities and science--and that even less is done to present what many have called the third culture or force--social science.[41] We made many efforts to unite science and humanities. Thus, in producing the films, we chose models who discussed matters which would bridge these gaps. The text presents discussions which consider both scientific advances and their effect on contemporary man, his arts and his ways of living. We wanted to help students to become aware of the directions in which our technology is moving us and to begin to ask questions about what are too often the unspoken and unrecognized assumptions underlying technical advances. Our philosopher-models ask many questions about human goals. In contemplating man and his relationship to machines, Loren Eiseley asks, "Where is all this taking us? Are we masters here? Or have these, our creations, escaped us and taken on life of their own?" We feel students must ask if modern man has isolated himself from his world by giving free reign to his need for controlling nature. We introduce statements and points of view that raise questions as to whether economic growth and technology are valuable in themselves. Is simply producing more and more goods a very satisfactory solution to any of the more fundamental problems of life? Is accumulation of money a valid measure of personal worth? Perhaps there are other goals--at least as important, and perhaps even more so.

The materials which we developed reflected a point of view, and our plan was to encourage students to seriously consider this in relation to other values that are rather generally accepted and often extolled in our culture. We wanted to portray human beings as emerging and becoming: as alive, thoughtful and self-aware. Each of the models is more committed to the humanitarian and altruistic ways of behaving than to simply "getting ahead" economically or socially. In filmed sequences, Harold Taylor takes the audience to a crowded slum in Upper Manhattan, to see the living conditions and the response of young slum dwellers to the dedicated workers of the American Friends Service Committee. He points out that there are many ways that a person can work for peace, and he adds that we may not realize that, when we are helping others, we are "helping to create a new culture and a new society out of which peaceful ways of arranging our affairs can come." Similarly, paragraphs and excerpts in the text emphasize creative and ethical ways of thinking about education and about the world and the people in it. In a film soliloquy, Eiseley reflects on man's past and on his potentialities for positive future evolution: "Out of those worlds, along with all the brutality which existed then and still exists today, there was still that strange sensitivity, that tenderness, that direction toward the future which so characterizes man at his highest moments."

Mass media, particularly newspapers and television, but also current fiction, tends to keep us well apprised on technology and human evil but does not round out the view to include positive directions--the good and the true, philosophy and culture.* We felt that a common dilemma of contemporary man is a feeling of powerlessness and often of alienation--we wanted students to meet adults who feel otherwise, who were shaping their environment in intelligent ways, and who--in the true spirit of democracy--took an optimistic, responsible view of man. The tone is set in the beginning of the first film when the moderator of the series says to the students, "We can learn to be better human beings: kind, responsible and truly human."

We also felt what has been called the masculine emphasis in our culture on doing and achieving, particularly in terms of making things and making money, is not a particularly healthy one. Both by presenting as many women as men and by the focus that our models (particularly the women) give to their lives, we were able to emphasize aesthetic, humane and intuitive ways of thinking. For example, one of the qualities of a self-actualizing person, a concern for humanitarian-altruistic values, was felt to be particularly important, and this is stressed by word and deed in the films and in many of the materials included in the text. Traditionally, in Western culture such values have been considered a feminine attribute and, thus, less valuable than military force, technological viruosity, political power and other impersonal and less gentle values. In preparing the materials, our attempt was to show that such values are important for all human beings, men and women alike. We felt that boys particularly would gain much and that our society would gain in turn if they could come to accept such qualities as warmth, compassion, kindness and gentleness as valuable character traits and such interests as art, philosophy and poetry as important to the full development of a human being.

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*In a recent Saturday Review article, J. Donald Adams comments on the negative nature of contemporary fiction. He says that the average contemporary "serious" novelist "only looks down, never up." He says that he can count on the fingers of one hand those novelists who show human good as well as human evil, and he continues: "The most touted names in contemporary fiction . . ., the novelists our bewildered critics write most about, choose to walk down a one-way street. They have nothing to say to us that we do not already know, and they write half-truths only." ("The Dilemma of Success," Saturday Review, January 30, 1965, p. 42.)

In addition to an effort to balance the aesthetic-intuitive with the achievement orientation, we tried in various ways to show the dangers of a life dominated and even shackled by technology and to indicate that philosophical understandings can--at least at times--allow the soul and mind of man to soar. As Anne Roe sees this problem and comments in her film, full human development means helping each individual " . . . to admit to awareness of whatever he may experience, developing understanding, and controlling actions, and learning to fit experiences into other experiences and into the experiences of others. It means confronting reality zestfully, learning to face difficulties willingly, and finding out how to mobilize resources to deal with them."

In the presentation of such values as essential parts of a social order and of the maximally healthy and mature human personality, we try to show--in this film series--roles for men and women that go far beyond the usual stereotypes. The women are in professions that have usually been considered masculine, and the careers the men follow are not in the usual masculine stereotype. Thus, our model of an artist is a man, the judge a woman, the research-oriented social scientist and the radiologist also women, but the poet-naturalist and philosopher-exponent-of-the-arts are men. In this way, we hoped to weaken the stereotypes of male and female roles. We hoped that, as a result, girls would not restrict their careers and style of life choices to the typically feminine and that boys would not restrict their careers, values and style of life choices to those stereotypically considered masculine.

In coming to value the aesthetic, we felt that it was very important for students to understand the importance of non-verbal as well as verbal communication and learning. Sometimes this experiencing is through the eyes and the words of the model and sometimes directly through the filmed sequences--students are led directly to an awareness of beauty by the focus of the camera. Deep in an Oregon rain forest, Barbara Radmore shares her own "joy in experiencing nature," commenting, " . . . to smell the ferns and think to myself, 'This is a sword fern or this one's a bracken fern. Each one smells differently.' And I like the feel of bouncing ground underneath all the pine needles . . . "

The films were constructed so that they were experiences in themselves; that is, many sequences were designed to be aesthetically evocative. Tree branches form dark patterns against light, dew is caught suspended on moist leaves, and a white caterpillar is followed in its halting progress up a twisted wire--like confused man, moving toward an unknown future. There are direct suggestions to the students--how to live more sensitively and with ever-deepening awareness. Robert von Neumann, the artist, points out the contribution of textures such as the "rich surface treatment of clay" to the visual impact of art and decries the fact that artists today often lack social concern and commitment. Kay Britten, the singer, reflects on the meaning that music has had for her, personally and professionally, as she comments, "It makes me a happier, more interesting, vital person . . . . I have more of the world to bring them [her family] and share with them." Both artists demonstrate well what living in the richness of the moment means and often exult in "mere being" and yet both are fully aware of yesterday and of tomorrow, of the contribution of the past and the mission of becoming.

All models are shown in terms of their feelings and reactions, likes and dislikes, and most give clues as to how their tastes were formed. The textbook, with its dialogues and discourse, as well as its excursions into the non-verbal realm--pictures, cartoons, designs and doodles--was similarly designed to stimulate the student to look for many ways to interpret the world and to set forth his own feelings.

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V. DEVELOPMENT OF PROGRAM

A. *Technological and Social Change: Its Implication for Educational Change*

1. Margaret Mead, *Continuties in Cultural Evolution* (New Haven: Yale University Press, 1964), p. xxi.

2. We have found that generally the creative intellectual student has wanted to contemplate existential problems. In this respect he may be like the adult intellectual who Bell (Daniel Bell, *The End of Ideology* [Glencoe, Illinois; Free Press, 1960]) says does not simply concentrate on specific problems about objective process but who instead tends to begin with " . . . *his* experience, *his* perceptions of the world, *his* privileges and deprivations, and judges the world by these sensibilities." In contrast,Bell describes the scholar as one who works in a " . . . bounded field of knowledge within a tradition, and seeks to find his place in it, adding to the accumulated, tested knowledge of the past as to a mosaic." The scholar tends to judge his performance by impersonal and objective standards (those of his discipline) and is a competent worker but not a dreamer. In many ways the difference between the intellectual and the scholar which Bell delineates is similar to the difference between the creative intellectual and the studious which we have described ("Creative and Academic Performance in Gifted Adolescents," *The High School Journal*, The University of North California Press, November, 1964, Volume 48, No. 2, pp. 94-101).

It is interesting to note that Bell's description of the intellectual's experiential and perceptual involvement as he contemplates larger problems is very similar to the definition of the cognitive process that Bruner has given. Bruner refers to cognition as the process of knowing--man's ability to build conceptual models of his world. To build these models, man goes beyond available information to predict the nature of things he has not experienced. Thus we could argue that the very act of knowing involves creative intellectual behavior and concern for a personal ideology. (Jerome Bruner, *On Knowing, Essays for the Left Hand* [Cambridge: Belknap Press of Harvard University Press, 1962]).

3. Jules Henry, *Culture Against Man* (New York: Random House, 1963).

4. This is similar to an idea expressed by Reiser (O.L. Reiser, "The Integration of Knowledge," Julian Huxley [ed.], *The Humanist Frame* [New York: Harper and Brothers, 1961], pp. 233-250).

5. See entire issue of *Daedalus*, Winter, 1965, which is devoted to essays on "Science and Culture."

6. René Dubos, "Science and Man's Nature," *Daedalus*, Winter, 1965, pp. 223-245.

7. Rollo May *et al.* (ed.), *Existence, A New Dimension in Psychiatry and Psychology* (New York: Basic Books, Inc., 1958), p. 22.

8. Robert Theobald, "Cybernation -- Threat and Promise," *The Bulletin of the National Association of Secondary-School Principals*, Vol. 48, November, 1964, pp. 22-36.

9. *Ibid*.

10. Reiser, *op. cit*.

11. Mead, *op. cit*.

12. Quoted by Thomas J. Fleming, "The Superior Person," *Cosmopolitan*, November, 1964, pp. 60-65.

13. Liveright notes that it is the exceptional teacher who arouses a thirst to learn and such a teacher must " . . . work against the mores of our existing high school and college practices" to accomplish this since " . . . most high school and college training inhibits curiosity and motivation for continuing education." (A.A. Liveright, "Lifelong Education," *The Bulletin of National Association of Secondary-School Principals*, *op. cit*., pp. 99-110).

14. Mooney holds that " . . . teaching is impossible without consciously or unconsciously having in mind how one wants to affect the behavior of those who are taught. This requires a view of what one wants man to become." (Ross L. Mooney, Groundwork for Creative Research," *American Psychologist*, September, 1954, pp. 544-548.)

B. Program Aims: New Directions in Education

15. For a further discussion of this concept see Gordon Allport, *Becoming* (New Haven: Yale University Press, 1955).

16. Julian Huxley, "The Humanist Frame," in *The Humanist Frame*, *op. cit*., pp. 13-48.

17. Allport, *op. cit*.

18. Mead, *op. cit*., p. 239.

19. Harold Anderson, "Creativity as Personality Development," Harold Anderson (ed.), Creativity and Its Cultivation (New York: Harper and Brothers, 1959), pp. 119-141.

20. Abraham H. Maslow, Motivation and Personality (New York: Harper and Brothers, 1954).

21. Paul Tillich, The Courage To Be (New Haven: Yale University Press, 1952).

22. John Dewey, Democracy in Education (New York: Macmillan Co., 1916).

23. Erik Erikson, "Youth: Fidelity and Diversity," Daedalus, Winter, 1962, pp. 5-27.

24. Bruner feels that mathematics is the most general of metalanguages, noting that it provides the forms and patterns in terms of which regularities in nature are comprehended. He also feels that poetry performs a similar function in that it helps with the search for likenesses beneath the surface of diversity and change--is a vehicle for searching out unexpected kinship (Jerome Bruner, "Education as Social Invention," The Journal of Social Issues, Vol. 20, No. 3, July, 1964, pp. 21-33).

25. Robert Theobald, Free Men and Free Markets (New York : Clarkson N. Potter, Inc., 1963).

26. Dennis Gabor, Inventing the Future (New York: Alfred A. Knopf, 1964).

27. See Teilhard de Chardin, The Phenomenon of Man (New York: Harper and Brothers, 1959) and Reiser, op. cit., pp. 233-250.

D. Content Change: The Four Worlds Textbook

28. E.G. Williamson, "Counseling as Preparation for Self-Directed Change," Teachers College Record, Vol. 65, No. 7, April, 1964, p. 618.

29. Ibid., pp. 614-615.

30. Nicholas Hobbs, "Sources of Gain in Psychotherapy," American Psychologist, 1962, Vol. 17, pp. 741-747.

F. Program Aims as Related to Curriculum Materials and Approaches

31. Loren Eiseley, The Firmament of Time (New York: Atheneum, 1960).

32. Erich Fromm, The Art of Loving (London: George Allen and Unwin Ltd., 1957).

33. Donald Michael, Cybernation: The Silent Conquest (Santa Barbara, California: Center for the Study of Democratic Institutions, 1962).

34. May, op. cit., pp. 42,74.

35. Ansel Adams and Nancy Newhall, This Is the American Earth (San Francisco: Sierra Club, 1960), pp. 75, 76.

36. May, op. cit., p. 41.

37. J. Richard Suchman, The Elementary School Training Program in Scientific Inquiry, Title VII, Project No. 216, N.D.E.A., Grant No. 7-11-038, June, 1962, p. 9. (Also published Urbana: University of Illinois Press, 1963).

38. Peter F. Drucker, "American Directions: A Forecast," Harper's, February, 1965, pp. 39-46.

39. James Ackerman, "On Science," Daedalus, Winter, 1965, p. 19.

40. Margaret Mead, "The Future as the Basis for Establishing a Shared Culture," Daedalus, ibid., p. 154.

41. Talcott Parsons, "Unity and Diversity in the Modern Intellectual Disciplines: The Role of the Social Sciences," Daedalus, ibid., pp. 39-65.

VI. METHOD: SETTING AND POPULATION DESIGN AND INSTRUMENTATION

A. Setting

In an effort to understand the problems of educating able youth,* it is necessary to keep in mind the importance of the totality of the environment in which the individual lives. In addition to the school, his environment includes the family, peer and community cultures with which he comes in everyday contact and which have a role in shaping his interests and attitudes. In introducing this chapter, we will consider the character and contributions of the environment and describe the general social-cultural milieu of the city of Lansing, in which this study was conducted.

Lansing is a Midwestern city with a population of 120,500 (July 1, 1963, estimate); the adjoining city of East Lansing has a population of 45,000, including Michigan State University students who live on the campus and in East Lansing. The tri-county area, which includes Ingham, Clinton and Eaton counties, has a population of over 300,000.

The major economic force in Lansing is the motor vehicle industry, which as recently as 1958 accounted for 83 per cent of the total manufacturing output.[2] Government spending (Lansing is the state capital) is the second major economic support with 24,000 people employed in state offices. The third economic force in the area is Michigan State University, which not only employs a large number of people but also contributes approximately 31,000 students (at all degree levels) to the general consumer economy. The University and the state government account for a large number of the professional and white-collar workers in the area. It should be noted, however, that most of the University faculty live in East Lansing rather than Lansing proper, and thus there may be less direct influence of the University upon Lansing young people than would be expected.

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*The position taken in this research is that the education of gifted adolescents should include among its aims the development of identity, of motivation to learn, and of openness to change and purposively work toward these ends.

Other than these three major concerns, there are few large industries or important enterprises which affect the Lansing area's economy or which employ a large number of people. This situation, when compared to larger metropolitan areas, may create for the adolescent a certain narrowness in the diversity of career opportunities and life experiences to which he is exposed. Typically, adolescent boys and girls come into contact more or less exclusively with adults, their teachers excepted, who are in the same occupational category as their parents. This restricted exposure to possibilities undoubtedly limits awareness of the wide variety of career choices and life styles which are available for all adolescents today and especially for those who are intellectually gifted.* Even if a student exhibits precocious ability in an area, it may not be recognized, and almost certainly such a gifted student will not be brought into close association with adults who might be models of excellence in that particular field (unless the precocity is shown in athletics). The result is that the youth with unusual talent will not receive the recognition and encouragement needed if his talent is to flourish. Particularly, he is not apt to receive special instruction and guidance if he shows intellectual excellence.*

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*This is not to say, however, that a wide variety of occupational enterprises are not found in the Lansing area. Like any city the size of the Lansing-East Lansing complex, there are many small businesses and industries. For example, while the city does not have a large violin-making industry, it does have a small establishment where violins are made. But in the case of such small enterprises, they are seldom known to many people in the community, they employ few persons, and, hence, generally remain unknown to the students.

From the standpoint of supplying the creature comforts and the educational basics, the situation in Lansing is a good one. Economically and educationally the Lansing citizen is above national norms. The per capita income for the Lansing area in 1958 was 106 percent of the national average.[3] In 1959, the median school years completed for parents of a sample of 331 Lansing students with average ability was 11.5 for fathers and 11.8 for mothers,[4] as compared with a national median of 10.6 in 1960.[5] The parents of superior students in the Lansing schools were, as might be expected, even better educated than the average parent. In the 1959 study, the median number of years spent in school was 12.4 for the mothers and 12.5 for the fathers of all students in the ninth grade identified as having IQ's of 120 or above.[6]

The mere existence of a good environment may not mean that a student will or can take advantage of the offerings. Within the Lansing area, there is a remarkably wide range of available recreational and cultural opportunities, and the bordering city of East Lansing and the University that is located there offer outstanding programs of an aesthetic and intellectual nature. In fact, even though the Lansing-East Lansing complex cannot be called a "big city," it offers an exceptionally rich variety of cultural and recreational opportunities that are often available only in the largest cities. It is possible to attend a wide variety of concerts, art exhibits, dramatic presentations, lectures and civic activities. Beyond this, museums, the cyclotron, the computer laboratory and the planetarium are available on the campus at convenient hours.[7]

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*Pressey indicates that much more approval, as well as much more individual guidance and instruction, are given if the excellence emerges in athletics or music than is true when the gifts are purely intellectual. He notes that when intellectual gifts are recognized the effort is often made to discourage their development (usually in the name of social adjustment) rather than to facilitate it. (Sidney L. Pressey, "Concerning the Nature and Nurture of Genius," The Scientific Monthly, Vol. 81, September, 1955, pp. 123-129).

However, despite the obvious richness of this environment, most of the able students in the Lansing schools have little contact with the aesthetic and intellectual realms. In contrast, the recreational opportunities (Lansing is near a number of lakes and wooded areas) are used extensively. Most families seem to be able to participate in some form of recreation, and few lack clothing or food--students tend to be well fed and physically fit. However, they are more apt to know how to catch fish than to be able to identify the surrounding flora and fauna, and they probably understand motorboats better than they do classical music.

Despite the fact that many able Lansing students do not participate in the seemingly accessible cultural events, most are aware of the arts and would like to become consumers in this area. The problem appears to be that they do not know how to engage in the culture about them. There appears to be a lack of parental encouragement for participation in or sampling of the aesthetic and intellectual offerings of the community. Students take music lessons but many neither listen to good music in their homes nor attend concerts with their parents. In a survey of ninth grade students in an accelerated English program in the Lansing school system made in May, 1964, it was found that 43 per cent of the boys and 26 per cent of the girls had never attended a symphony, although almost all of the boys and the girls reported that they would like to. Similarly, 80 per cent of the boys and 91 per cent of the girls had never seen a ballet, although 50 per cent of the boys and 96 per cent of the girls evidenced a desire to attend.[8]

There seems to be little doubt but that when a special kind of endeavor or activity (politics or science or art) is valued by even a cluster within a peer group, that kind of activity will flourish. Mearns established a climate--a small cultural cluster--at Columbia University which resulted in a great interest in poetry and eventually produced a number of fine poets.[9] Unusual teachers have always found responsive students,[10] but our contention is that special materials and encouragement can help a far greater number of teachers to create such generative settings. There seems to be every reason to believe that a specially created, culturally and intellectually evocative program will find a most responsive group among the intellectually superior adolescents in Lansing, as has been the case in other localities.

B. Population

Because a large part of the study involved reading materials written on an adult (college) reading level, the students in the population were selected on the basis of their comprehension scores on a reading test* rather than on an intelligence measure. All students were included in the study who scored at least two years above their grade level; that is, all those chosen read at eleventh grade level or higher in May, 1962. In June, 1962, the 243 students (maximum sample) who had been selected were assigned randomly to an experimental or control class by the assistant principal in their schools. Table 1 reports a final or minimum sample of 198 students for whom all major data were completed, as well as the larger or maximum sample of 243, which includes other students originally selected but for whom complete test data could not be obtained.*

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*Reading level scores were obtained by the California Reading Test (CRT), Advanced Form edited by W. E. Tiegs and W. W. Clark. (California Test Bureau, 1950). Only the comprehension section of the test was used in the present study. In this section there is an emphasis on following directions, on reference skills and interpretations of meanings. Scores on this test, as on all California achievement tests, are intended to indicate grade placement and percentile rank of students in relation to a normative school population.

TABLE 1

MAXIMUM AND MINIMUM POPULATIONS BY SCHOOLS AND BY BOYS, GIRLS, TOTALS IN EXPERIMENTAL AND CONTROL GROUPS

	Boys		Girls		Total	
	Max.	Min.	Max.	Min.	Max.	Min.
Experimental						
C. W. Otto	9	6	20	15	29	21
Pattengill	13	13	20	18	33	31
W. French	16	14	14	14	30	28
West	20	15	12	8	32	23
TOTAL	58	48	66	55	124	103
Control						
C. W. Otto	8	7	18	14	26	21
Pattengill	13	9	20	18	33	27
W. French	13	7	15	14	28	21
West	16	15	16	11	32	26
TOTAL	50	38	69	57	119	95
TOTAL SAMPLE	108	86	135	112	243	198

In the discussion that follows, we shall describe the experimental and control groups in terms of their reading comprehension, intelligence and aptitude test scores, as well as their parents' education, their father's occupational status and the family size.

Reading Comprehension (Table 2): The scores on the

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*For various reasons, mainly the fact that the family moved, some of the students were unable to complete the course.

CRT, Advanced Form, ranged from 11.0 to 14.7 for the experimental group, and 11.0 to 16.5 for the control group. The means were similar with the experimental group averaging 12.32, while the average for the control group was 12.27.

TABLE 2

MEANS FOR GRADE LEVEL SCORES ON THE CALIFORNIA READING COMPREHENSION TEST BY BOYS, GIRLS, TOTALS IN EXPERIMENTAL AND CONTROL GROUPS

	Experimental	Control
Boys	12.25	12.39
Girls	12.38	12.20
Total	12.32	12.27
Range	11.0 - 14.7	11.0 - 16.5

Intelligence (Table 3): Verbal scores on the California Test of Mental Maturity (CMM) were used as a measure of intelligence. Scores on the CMM for the experimental group ranged from 100 to 145 with a mean of 123.38, and for the control group ranged from 97 to 159 with a mean of 122.31. Because the students in these classes were chosen on reading scores rather than on the basis of intelligence, some of the students' IQ ratings were lower than would ordinarily be expected of individuals in an intellectually superior population.

TABLE 3

MEANS FOR VERBAL IQ'S ON THE CALIFORNIA TEST OF MENTAL MATURITY BY BOYS, GIRLS, TOTALS IN EXPERIMENTAL AND CONTROL GROUPS

	Experimental	Control
Boys	122.58	122.26
Girls	124.06	122.35
Total	123.38	122.31
Range of IQ's	100 - 145	97 - 159

Mean differences between experimental and control groups were analyzed using the t-test and none was significant.

Aptitude (Table 4): On the Differential Aptitude Tests (DAT),* the ranges for the experimental and control groups were identical--from the 25th to 99th percentile. The means for the groups were slightly different, with the experimental group averaging 83.35, and the control group averaging 81.85.

TABLE 4

MEANS FOR PERCENTILES ON THE DIFFERENTIAL APTITUDE TESTS BY BOYS, GIRLS, TOTALS IN EXPERIMENTAL AND CONTROL GROUPS

	Experimental	Control
Boys	83.33	81.07
Girls	83.38	82.37
Total	83.35	81.85
Range	25 - 99	25 - 99

Family Background (Table 5): Additional descriptive information, including parents' education, socio-economic status and family size, was acquired from pupil questionnaires, school files, and, occasionally, from interviews with teachers, administrators and parents. Examination of these data shows that the parents' educational level was not significantly different for the two groups. Fathers of students in both the experimental and control groups generally had some college, business or technical training, while the mothers of students in both groups had, on the average, completed the twelfth grade. When the Father's

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*The administration of the DAT was not a part of the experimental study, but instead was done as a part of the school system's ninth grade testing program. We are reporting the results to give further information about the nature of the population. A significance test was not made since only means, not individual scores, were available when this report was written.

Occupation was the criterion (using Warner's Index of Status Characteristics) the median socio-economic status was 3 for both experimental and control groups. In other words, fathers were generally white collar, but there were a considerable number of blue-collar workers in the group. When means were computed for Father's Occupation, the socio-economic status was 3.17 for the experimental group which was slightly higher than the 3.45 derived for the control group. However, this slight difference between the groups was not significant. The median family size (number of children in the family) was three children for students in both groups.

TABLE 5

MEANS AND MEDIANS FOR PARENTS' EDUCATION, FATHER'S OCCUPATIONAL STATUS AND FAMILY SIZE IN EXPERIMENTAL AND CONTROL GROUPS

	Experimental		Control	
	Mean	Median	Mean	Median
Father's Education[a]	4.9	5	4.8	5
Mother's Education[a]	4.59	4	4.44	4
Father's Occupation[b]	3.17	3	3.45	3
Family Size	3.0	3	2.9	3

Differences between experimental and control mean scores on Father's Occupation were analyzed using the two-tailed t and were not significant.

Differences between experimental and control distributions around the combined medians of Father's Education, Mother's Education and Family Size were analyzed using the median test and none was significant.

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a. Scale for level of education

1. Less than seventh grade
2. Through grades seven or eight
3. Through grades nine or ten
4. Through grades eleven or twelve
5. Some college, business or technical training
6. Finished college

7. Attended graduate or professional school after college
8. Received an advanced degree--M.A. level
9. Received an advanced degree--Ph.D. level (includes other doctoral degrees as well)

b. Warner Scale for Father's Occupation

The range of this scale extends from 1 (high-level professional or business executive) to 7 (unskilled labor or domestic servant). (For full scale, see the Appendix.)

c. Family Size refers to the number of children in the family.

Discussion: This population of students was an intellectually superior group as measured by the California Test of Mental Maturity and the Differential Aptitude Tests. The typical student belonged to a family of three children, and his parents usually had a high school education with some advanced training. Fathers were generally white-collar workers though a sizeable number were blue collar.* The experimental and control groups were comparable and did not differ appreciably on any of these measures.

C. Design and Procedures

1. Introduction

This study of intellectually able ninth graders in the Lansing Public Schools used what has been called a Pretest Post-test Control Group design.[11] Two classes, an experimental and a control, were studied in each of four junior high schools. Using the selection criterion of eleventh grade reading ability, we chose about sixty students in each of these schools;** and from this pool random assignments were made to the experimental class and the control class within each school. These selections of total population and experimental and control groups were made in the spring of 1962. During the following summer--just prior to the experiment--letters were sent to the parents of the students in the experimental group explaining that their children had been chosen for an experimental career-social studies course. They were told what the criterion for the selection was (reading scores) and that the selection had otherwise been random, and they were also informed that any student could be withdrawn if the parents objected to the experiment.* The letter was written by the principal investigator in cooperation with the assistant principal in each school. It was mailed to the parents by the principal in each of the four schools.

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*In ten years of research on the academically superior students in the Lansing schools, we have found that a great majority of the gifted students, like most Lansing students, are white Protestants, and are of mixed ethnic background of the type sometimes referred to as assimilated American.

**The junior high schools were: C. W. Otto, Pattengill, Walter French and West. At the time of this study, the first semester of the school year, 1962-1963, these four junior high schools enrolled all of the public school students within this age range.

Selections of the counselor or teacher-counselor who was to teach the course were also made in the summer of 1962. The schools provided a teacher-counselor (referred to in this report simply as a teacher) who was considered by his respective principal to be a good teacher. These four teachers,** one woman and three men, carried the teaching responsibility for the project, one teacher for each of the four schools. These teachers were somewhat better trained than the usual secondary teacher inasmuch as they all were trained counselors and all had master's degrees. Each had in addition a teaching major in social studies. Each of the teachers taught two of the specially selected groups of ninth graders, one control class and one experimental. Classes were of the usual size for the Lansing Public Schools (approximately thirty students), and they met in regulation classrooms. In the case of the two newer buildings (C. W. Otto and Walter French), this meant that the arrangement of the furniture was flexible, but in the two older buildings (Pattengill and West) the desks were of the bolted-down variety.

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*No parents requested that their children be removed from the program.

**Jack Riley at C. W. Otto, Kay Howell at Pattengill, John Leonard at Walter French and Calvin Anderson at West.

Both the control and the experimental groups met daily during the regularly scheduled class periods for almost five months (one semester) beginning in September, 1962. Experimental students were aware that they were in a new program due to the special nature of the material and the fact that their parents had received the letter mentioned above informing them that they would be using different materials than were customary for Social Studies V.

2. Pilot Study

For most of the two-year period in which this course was developed, the text and the films could more accurately be described as "work-in-progress" rather than products. As part of the development, materials and approaches were pre-tested in the spring of 1962 in the ninth grade in the Lansing Public Schools. This and many other testing procedures gave us continuing clues as to how we might improve the program.

As a result of the continuous testing with students, as well as judgments which we made in terms of our program aims, revisions of many kinds were made continually. Our effort was to produce a program with both unity and diversity and materials that would introduce students to issues and questions as well as to solutions and philosophical positions. As much as possible the effort was to present themes of moment rather than the trivial or banal. For example, we attempted in both text and films to establish a redefinition of education as a flexible, ongoing process. Throughout the film series we tried to show the charm, taste and attractiveness that some people capture in their daily lives. We hoped to convey the idea that individuals can be deeply serious without being sententious and that they may look at life wryly without succumbing to cynicism--a common disease among the informed--particularly the newly informed. We wanted not only to capture the interest of students but to portray contemplative and idealistic ways of thinking. As an interim test of the effectiveness of the materials, in the spring semester of the 1961-1962 school year we tried out a core of readings and four films. These constituted what we have called the pilot experiment.

Two classes of academically able ninth graders were chosen for this experimental venture, and we used a social studies sequence as the setting. With the help of the schools we selected approximately thirty students in each of the two junior high schools for these trial classes. All of the students, and the two teachers* as well, studied and reacted to the style-of-life films** and the other materials. We had decided that the ideas and issues which were to be presented in the films should be suitably introduced. It was our feeling that learning would be enhanced if the students were aware of the context out of which this program had grown. To make our aims and directions clear, we carefully selected dozens of relevant articles and made them available to the students. In selecting readings and in making films, our plan was to introduce world issues, the realm of the intellectual disciplines and interesting people who had thought long and carefully about these issues and realms and about their own lives as well.

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*Jack Riley of C. W. Otto and Stephen Krebs of West served as the two experimental teachers in the pilot study, and contributed importantly in the preparation of the materials at this stage. Beth Kerman, the research assistant, worked closely with the teachers.

**The models featured in these films were Mary Coleman (the woman judge), Eugene Petersen (the historian), Kay Britten (the singer) and Robert von Neumann (the artist).

In addition to selected articles for class reading, files of annotated bibliography cards were developed in order to suggest titles in biography and fiction that able students might enjoy and which we felt would give a more complete view of human development, including careers, than typical career pamphlets that usually were central to the Social Studies V vocational guidance course. Expendable materials were also supplied. For example, literally hundreds of magazines were brought into the classroom for students to browse through, read, and, if an article seemed appropriate, to clip. Students were urged to make selections from these diverse materials (and some others that they had personally discovered and found appealing) and to begin to construct a book of the world as they saw it. We imposed no particular structure but instead wanted the students to select articles and make comments freely.

Although the pilot program was not a formal experiment, we did compare our experimental students on pre- and post-tests with sixty equally able students who were in two social studies classes (each in a junior high school other than the two pilot-program schools) studying the usual career materials. Changes in student attitudes and values were measured, and it was our conclusion that the rather impressive post-test gains in the pilot program suggested that our materials and teaching approaches were producing the changes in motivation to learn and in openness to psychological growth that we had hoped for. As a result, we continued to work in essentially the same direction. The shifts in emphasis made after our pilot effort were slight and generally were a matter of introducing more material relating to life style and philosophy of living rather than to career planning.

3. Experimental Procedures

The experimental program was begun officially in September, 1962. At the beginning of the school year and prior to the formal introduction of the new program, several class hours were devoted to the administration of interest and ability tests given to all Lansing ninth graders. In addition to this, the experimental and control groups were given pre-tests which were selected or designed as relevant to the aims of the new course. Thus, it was only after the second week in school that the experimental course could begin.

At the outset of the new program, the introductory film was shown. Through this film, the students began to have some understanding of the purposes and goals of the course. For example, the psychological views and definitions of education which we wanted students to understand were reviewed. Students were told about the Four Worlds they would explore and introduced to the concept of self-actualization--the psychological orientation of being and becoming. At the same time, they were given the preface to the textbook--a letter "To the Student" which explained that this would be a "different" kind of occupations course in which the ideas and the values of each student would be important. Descriptions of the Four Worlds, as well as suggestions for the use of the textbook, were also included in the letter.*

Following the showing of the introductory film, and after the students had read the preface or letter, the Natural World (which introduced the textbook) was distributed. Each teacher handled the materials according to a slightly different schedule, but, in general, a new World was distributed every two weeks. The use of the materials followed a definite sequence although there was much built-in freedom at each step. Each teacher was encouraged to introduce new materials and to make variations in the kind of materials introduced at the time he felt was most appropriate for his group. However, in general, the experimental classes had discussed the first World (the Natural World) extensively by the end of September, 1962, and then were given the second World (the Aesthetic World) to consider and discuss and reconstruct. Throughout the experimental treatment, most students focused on the assigned World for the allotted ten days of class time. But it was made clear to the students that even though they might move on to new Worlds, they would be free at all times to continue to work on the total enterprise or any given idea or any World that had strong appeal. Hence, it was common in all four experimental groups to have students adding to earlier sections of their books; and by the time the Human World had been distributed, many of the students were still engaged in making additions to one or all of the other Worlds. In this respect, material was never "covered" and the issues closed, but rather built upon and expanded and sometimes carefully and critically studied and reduced. Editing was encouraged by the teachers, but not required, before the textbooks were submitted to the project director. It was our plan that in the first two months of the experimental treatment and during the time set aside for contemplating and shaping their Worlds, discussing crucial issues, and meeting important people, each student would acquire a background of knowledge as well as begin to ask questions upon which the films would build and expand. At the end of the first two months, the introductory film (with a new section introducing the eight models) was shown again. The re-showing of the film served to review the complexity and multiple facets of the Four Worlds with the students. At this time we particularly wanted the students to consider how adults might shape a meaningful life in such a diverse and unwieldy world and how they could come to terms with burgeoning knowledge. It was felt that the film models would show students how it is possible to shape a life and not merely be a victim or an object. Following this discussion, the first style-of-life film, featuring Dr. Petersen, was shown. Ideas in this film and in each of the others were considered for approximately a week before a new film was shown. The remaining films were presented in the order previously indicated.

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*A reproduction of the letter may be found in the Appendix.

In order to help students gain as much from the films as possible, mimeographed scripts had been prepared for each, and these were distributed to the students at the time that the films were shown. They were told that this script served two purposes: it would give them responsible information as to the ideas presented on the sound track and it would free them to enjoy aesthetic and visual aspects of the films. Some students followed the scripts during the showing of the films, but a more common use of these scripts was to read them over after the films had been shown, in preparation for the focused discussion on the day following the film presentation. This first discussion on each film was always tape recorded and for each of these recorded class sessions, at least two of the project assistants were present as observers.*

Student Discussion: Throughout the entire experiment, discussion was the heart of the activities. These discussions centered on all kinds of questions, issues and concerns that arose from the readings, the films and from the students themselves. As would be expected, each of the four teachers had his own distinctive style of conducting discussions. For example, in some cases the teacher would begin the discussion with a specific question about one of the topics alluded to in the film the students had just seen; in other instances, the discussion would begin with a general question, such as, "What did you think about the film?"

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*The students became accustomed to the tape recorder very shortly, and the observers and the teachers reported that recording these discussions did not inhibit the students sense of freedom.

Class procedures, although not rigidly controlled, were carefully followed and documented in the experimental classes. Immediately after each film was shown about ten minutes of class time was allotted for students to react to the models--their work and their styles and philosophies of life. The mimeographed form the students were given for this purpose was an open-ended one, i.e., they were asked simply to write their comments on the film.

As was indicated earlier, the day following the film showing there was a class discussion. It was at this time that students were given the mimeographed typescripts of the film being studied to use in the class discussion, and it was these discussions that were observed by two members of our research staff and which were tape-recorded and later transcribed.* The last ten minutes of these discussions centered on the student answering for himself (and for our information) the following questions:

1. Are you interested in the subject of the discussion? (Yes, No) Explain.
2. What did you feel were the most important ideas talked about today?
3. Did you agree with everything that was said? (Yes, No) If no, tell what you didn't agree with.
4. What else should have been said on the topic?
5. How would you rate your part in the discussion? (Check one in A and one in B)
    A. Better than others; About the same as others; Not as good as others.

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*We have in our files the transcripts of the class discussions which took place the day following each film. These are being studied with care and have been subjected in part to a content analysis. The elements of thought that are being studied in this content analysis are those which the researcher has found to be germane to the creative process. They are: affinity for aesthetics, ability to show self-understanding and awareness, affinity for solitude, and an awareness of the wider world. Results of this analysis will be given in Report III of this series.

B. Better than I usually do; Same as I usually do; Not as good as I usually do.

6. Do you think you could have made better comments than you did (Yes, No) If yes, why didn't you?
7. What do you think was the quality of the oral discussion? (Outstanding, Good, Average, Fair, Poor)

Our initial impression from observing the discussions, listening to the tapes, and reading the transcripts of these tapes has been that not only was there an interchange of extremely complex and often profound ideas among the students themselves, but also that there were excellent techniques used by the teachers in leading these discussions. A wide range of topics were chosen for discussion, varying from, "Do we need a department store on Venus?" to "Can man control his own destiny?"

As indicated earlier, the use of typescripts made the critical consideration of issues more possible. Soon students found that they usually could not make careless, inaccurate or hastily considered statements about the films since each class member had a typescript in his hand. For example, each student found it advisable to quote the film model accurately. Students also came to find the scripts useful as ways of clarifying their own ideas. Often in the first discussion day after the showing of the film, students would have already gone through the script and prepared their own commentary with care. Many scripts were underlined and covered with marginalia. Often in the oral interplay, students used new phrases and championed new ideas--new to the student, that is--but quite definitely related to the film and script. As the course proceeded, these ways of thinking and talking seemed to become more and more the students' own and most did not recognize or refer to the source. As has been mentioned above, teachers varied the ways in which they set the stage for and conducted class discussions, but in all cases the ideas presented in the films were either the core of the discussion or evoked it.

Teachers kept certain psychological considerations in mind as they planned for and conducted these seminar-type class sessions. From our previous research we had become aware that where students are venturing to express their unformed ideas and even to reveal their innermost feelings, there is a danger that there will be considerable personal and social upheaval. Feelings can be easily hurt and students may be disturbed when they see some of the negative aspects of themselves. For this reason, efforts were made to help the young people to respond empathically to one another, and the teachers tried always to meet personal revelations with sympathy and understanding.

Every effort was made to set up conditions which would enhance a student's openness to his experiences and improve his ability to communicate. Such openness was felt to have a reciprocal or interactive effect. Thus, we tried in several ways to fashion a situation that would allow and encourage students to reveal themselves. The films were constructed to foster such responses in that the models talked with deep feeling and revealed much about their personal lives. For example, Loren Eiseley said that he had led two lives as a boy--one in the rough-and-tumble boy's world outside and the other one in an imaginative world of his own. The teachers also made an effort to serve as models and to reveal their own opinions and feelings so that students similarly would feel free to be themselves. Hence, rather than passive moderators, the teachers often took definite stands in discussions, expressed their own value systems, and revealed themselves to be persons with opinions. However, they tried to avoid being opinionated persons. We also felt the flexible nature of materials contributed to a freer class atmosphere. Finally, the homogeneous class structure seemed to contribute to more open and more thoughtful interchange. These students may have been more willing to reveal their thoughts and ideas because they were in a group of young people, many of whom had developed to a level where abstract and philosophical thinking was a part of their lives--at least their inner lives.

Teacher Discussion: In order to fully acquaint the four teachers with the purposes of the course, many meetings were held at the home of the principal investigator.* The groups that met were usually made up of eight or ten people. (Besides the teachers, there were always several members of the research staff and a few advanced students from the University who followed the project closely.) In the discussions that were held, both the content of the course and the process of education were discussed. The teachers made suggestions about the issues that might be featured in class discussions and the kind of material that they saw as desirable for student reading. There was also much discussion about how the materials might best be used and how discussions could be facilitated.

Although there were many interchanges regarding the use of the text and films and what ways student interest could be stimulated, the heart of these discussions was the ideas of the course itself. During the evening meetings around the fireplace, the same issues and ideas that the students dealt with in class were explored by teachers and staff--new ways of looking at issues were noted and points of view were clarified. Thus, the meetings were not so much how to affairs as they were the class, on an adult level. As was mentioned before, all of the materials used were from adult periodicals, or books and pamphlets, and the ideas were ones that were central to both national and international dialogue. Inevitably, in their discussions of the Four Worlds, the adults became as excited as the students themselves; and, as among student groups, they found there was much disagreement among themselves. These meetings were held bi-weekly or oftener throughout the experiment and, although they were scheduled as two-hour meetings, they often lasted three and four hours. And the teachers in many ways showed evidences of growth and change. Certainly they all came to understand how discussions differ from recitations and what it means to participate freely in conversational interchange.

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*It was possible for those teachers and researchers who so desired to receive Michigan State University credit for their participation in these seminars and for the independent study in which they engaged. Some teachers, who were completing a "Self-Improvement Survey" for the Lansing Public Schools, preferred to receive in-service credit through the schools.

Needless to say, teachers who direct this kind of course must prepare specifically, and they must also read widely and think deeply themselves. Such activities are time-consuming and not always easy. As the teachers who taught in these classes said, it was often a case of one keeping up with thirty. One of them, as he* looked back over the experiment, said:

> In thinking about this, I think there are two important characteristics that a teacher should have in order to teach a course of this nature. I think the teacher should like to read. The course itself, in presenting the Four Worlds, deals with a lot of reading in many different and varied areas, and the teacher should enjoy this kind of activity. Another characteristic important to a teacher in this type of course would be a strong set of humanitarian values. I don't see how a teacher could teach a class like this without possessing this kind of value system himself.
>
> I think there are several advantages. First, this is a learning situation for the teacher. The teacher, through his reading and through the discussions, has an opportunity to come in contact with many new

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*This statement was made by Jack Riley in a filmed sequence. All of the teachers and many of the students will appear in this Project Summary Film.

> and different ideas. Second, the course is of tremendous interest to an adult because the students themselves are dealing with adult problems. For example, when you talk about over-population or about automation, these are adult problems. And perhaps a final advantage and a major one, I feel, is that here a teacher is given an opportunity to attempt to attain what I feel are the most important goals in social studies curriculum. We worked for greater critical thinking on the part of students, reduced prejudice of all types and helping the student to see his position in the world around him and how he can shape this world.

4. Control Procedures

The control groups received the usual course in occupational planning, i.e., all materials and approaches suggested in the Lansing Public Schools social studies curriculum guide were available for use in these classrooms. At the outset a battery of interest tests was administered and the results interpreted to these students. Course material supplied by the school included commercially prepared career films and textbooks* concerned with career planning. In addition, many vocational guidance pamphlets were available and these, as well as the textbooks, were used in the preparation of the term paper required of each student enrolled in Social Studies V. This manuscript was a statement of the specifications, requirements and the advantages and disadvantages of one occupation which the student was asked to choose as a possible future vocation. The only ways in which these control classes differed from the usual ninth grade career-social studies courses were: (1) the classes were homogeneously grouped according to academic ability (thus more than a normal amount of change might be expected to result from putting these able students together since the level of verbal communication would be higher than in an unselected class);* and (2) the teacher of the control group also taught an experimental group.**

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*The basic text was Citizenship in Action by Fred B. Painter and Herald H. Vixler (New York: Charles Scribner's and Son, 1958). In addition, Planning Your Future by George E. Myers, Gladys M. Little and Sarah A. Robinson (New York: McGraw-Hill, 1953, 4th edition) was used.

D. Instruments and Hypotheses

In our presentation thus far we have indicated that the major concern in this research was to determine whether or not a special program would increase students' self-actualizing tendencies. In order to do this, we planned to study changes in attitudes, interests and values toward increased motivation to learn, greater openness to psychological growth and more acceptance and concern for other human beings. The instruments which we chose to use in measuring these aspects of growth motivation*** were largely ones we had tried out in previous studies.[12] Some of the instruments were standardized and have been used extensively on other populations[13] while some (including ones we had developed in our earlier research) were of an informal nature. These latter measures were used to tap areas which we had found important in looking at the dimensions of creative style and self-actualization in our previous research and for which we had found no standardized tests available. Thus, at the outset we felt we had a fairly satisfactory battery to use for pre-testing both experimental and control students. However, because of the experimental nature of the program we had developed, we planned to continue to study assessment methods as we progressed with our study.

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*See Drews, Student Abilities, Grouping Patterns, and Classroom Interaction, op. cit.

**Since we were aware of the influence of teacher personality, we felt that having the same teacher work with both the experimental and control group in a given school would be a desirable procedure; however, we were aware that teaching approaches in control classes might be affected by the new methods teachers would be using in the experimental groups. The teachers were aware of this problem and made a sincere effort to teach the control class in the way that they usually taught Social Studies V.

***The term is used as synonymous with self-actualization.

As was mentioned before, the students were selected for the experiment on the basis of an ability to read two grades or more above their actual grade level. This selection criterion, the California Reading Test, Advanced Form, was administered during the spring of 1962, when the students were completing the eighth grade. The pre-test measures were given in September, 1962, as part of a series of tests administered by the school counselors. Traditionally, ten hours of general testing is given to all Lansing Public School ninth graders as part of the Social Studies V program. Tests are administered during the 50-minute class periods. Due to these patterns of testing, we were able to include the additional measures on attitudes, interests and values for both experimental and control groups, as part of an established practice.

In addition to the instruments already described, certain free response materials, such as essays, answers to open-ended questionnaires, interview records and the personalized textbooks, were collected, and most of these materials are being studied. Our plan is to analyze this data in order to identify responses indicative of creative and critical thinking--openness to self and to the world (including a lessening of prejudice) and a development of humane-altruistic concerns. Efforts are also being made to determine these kinds of attitudes by studying the tape-recorded class discussions. Due to a shortage of time and funds, the results of these analyses have not been included in this report. Instead, they will appear in a subsequent report based on an extension of the present study. In this new study there will also be a review of the results of re-testing a year after the experiment and an analysis of depth interviews of the most creative students who were in the program. This will be the third report in a series of three published under the title, THE CREATIVE INTELLECTUAL STYLE IN GIFTED ADOLESCENTS.

As has been mentioned, assessment instruments* were of two general kinds: standardized tests (which are discussed under formal measures) and instruments of a more informal nature, including interest surveys, rating devices and scales (which were designed by the investigator). The formal measures were selected to give insights into personality traits and attitudes related to the creative intellectual style. In addition, a test of critical thinking was administered. One set of informal measures (used in pre- and post-testing) was devised to provide further understanding of creative intellectuality, particularly as this quality was exhibited in adolescents as they reported on their present interests and patterns of life and on their plans for the future. The remaining informal measures (which tapped what we have called the feminine dimension) were developed while the program was under way and as we reached new understandings about our materials, the reactions of able adolescents, and the interaction between the two.

1. Formal Measures

The instruments we have designated as formal measures all have been used extensively with college and adult populations and have been found to differentiate between more and less creative (idea-oriented and open-minded) individuals. These included the Omnibus Personality Inventory (OPI),[14] the Allport-Vernon-Lindzey Study of Values (A-V-L),[15] the American Council on Education Critical Thinking Test, Form G,[16] and the Rokeach Dogmatism Scale and the Rokeach Rigidity Scale.[17] Each of these four instruments will be described briefly. Further discussion will be found in the Appendix.

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*See Appendix for description of these measures.

The Omnibus Personality Inventory (OPI) was constructed by Paul Heist and Phoebe Williams in 1957 at the Center for the Study of Higher Education in Berkeley, California. The purpose of the OPI varies from that of many personality tests in that it measures motivation to learn and openness to psychological growth* rather than psychopathology. The items are clustered into a number of personality scales that are considered by the Berkeley researchers to be particularly pertinent to the study of intellectual and psychological growth in college students. In our earlier research the instrument appeared to be equally valuable to measure the attitudes (and attitude change) of able high school students.

We chose five of the OPI scales, Originality, Complexity, Estheticism, Theoretical Orientation and Thinking Introversion, to use in our present study of the patterns of growth motivation in able ninth graders. These scales are specifically concerned with personality variables which have been hypothesized, on theoretical grounds, to be characteristic of self-actualizing people--a thesis which the research findings of Warren Heist[18] on creative college students support and which our earlier study on the creative intellectual style in high school students also seems to uphold.[19]

As a result of the special program which presented self-actualizing adults as models, emphasized and explained the concepts of being and becoming, and gave opportunities to explore philosophies of life and world views in free-form discussions, certain hypotheses have been drawn.

I. IT IS HYPOTHESIZED THAT THE EXPERIMENTAL GROUP OF NINTH GRADERS WOULD, AT THE END OF THE EXPERIMENT,

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*In general, college students receive higher scores than high school students and intellectually gifted students rank higher than those with average ability.

SCORE HIGHER ON THE ORIGINALITY, COMPLEXITY, ESTHETICISM, THEORETICAL ORIENTATION, AND THINKING INTROVERSION SCALES OF THE OMNIBUS PERSONALITY INVENTORY THAN WOULD THE CONTROL GROUP.

Brief descriptions of the attributes that these five scales primarily measure are given below:

> Originality: The O scale, adapted from research by Barron and Gough at the University of California, measures a tendency toward highly organized but individual ways of reacting to environment. Characteristics of high scorers are independence of judgment, freedom of expression, rebelliousness, rejection of suppression and novelty of insight.
>
> Complexity: The Co scale, adapted from an earlier instrument developed by Barron, distinguishes between people who perceive and react to complex aspects of their environment and those who generally react to more simple stimulus patterns. High scorers are more independent, liberal, critical, unconventional, and potentially are more original and creative: they welcome the new and different in their experiences. Low scorers tend to be compliant, conservative, accepting of authority and tradition, and simpler in their organization and perceptions.
>
> Estheticism: High scorers on this Es scale find value in form and relationships and seek major satisfactions in the "artistic episodes of life" as these are expressed by literature as well as by art and music.
>
> Theoretical Orientation: The TO scale measures the tendency of people to look for theory rather than isolated facts. Scientists, especially the more creative scientists, tend to be strongly oriented in this direction. A high score on this scale usually indicates a desire to deal with the general rather than the specific.
>
> Thinking Introversion: The TI scale derives from work conducted by Catherine Evans and T. R. McConnell, and high scores indicate a preference for reflective thought, particularly thought of an abstract nature. High scorers are interested in ideas and concepts, and they tend to be less influenced by external conditions and commonly professed ideas than are low scorers.

The second personality inventory used, the Study of Values (A-V-L), measures six value orientations.* This test is a widely used one which, in the words of its authors:

> . . . aims to measure the relative prominence of six basic interests or motives in personality: the theoretical, economic, aesthetic, social, political, and religious. The classification is based directly upon Edward Spranger's Types of Men, a brilliant work which defends the view that the personalities of men are best known through a study of their values or evaluative attitudes.[20]

The test is constructed on a forced-choice basis, so that high scores on any one scale necessitates low scores on some other scale or scales. The six scores can therefore be interpreted only in relation to each other; a high score on a scale indicates only that this orientation is more highly valued than the orientation on which a subject receives a low score. Heist and his colleagues at the Center for the Study of Higher Education have noted a pattern of scoring on the A-V-L which shows that highly creative individuals who take the test have high theoretical and aesthetic scores, low economic and political scores.

II. IT IS HYPOTHESIZED THAT THE EXPERIMENTAL GROUP WOULD, AT THE END OF THE EXPERIMENT, SCORE HIGHER ON THE AESTHETIC AND THEORETICAL SCALES OF THE ALLPORT-VERNON-LINDZEY STUDY OF VALUES THAN WOULD THE CONTROL.

The six value orientations measured on the A-V-L are:

> Theoretical: This orientation characterizes a person with a dominant interest in the discovery of truth, one who is concerned with cognitive approaches to reality, and one who is critical, rational, and given to intellectualizing. (Findings at both Berkeley Centers show interest in scientific fields to be a strong correlate of this orientation.)
>
> Economic: The person high on this scale is interested primarily in the utilitarian and the practical and in the accumulation of material goods and its associated activities.

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*This test was published first as the Allport-Vernon Study of Values in 1931 and revised as the Allport-Vernon-Lindzey Study of Values in 1951.

Aesthetic: The aesthetic person places great value on form and harmony. His major orientation is toward a pleasing organization of sensory experience, and toward the artistic aspects of the environment.

Social: The high scorer on this scale is oriented toward people as such without regard to theoretical, aesthetic or practical attitudes, which he may regard as cold and inhuman.

Political: The political value does not necessarily indicate interest in the field of politics, but chiefly an interest in power and influence over others. The person who scores high on this scale likes the struggle and competition with which power is commonly associated.

Religious: The person scoring high on this scale is something of a mystic, seeing the highest values in a search for the meaning of life and in comprehension of the cosmos as a whole.

The third instrument used in the present study was the American Council on Education's Critical Thinking Test, Form G. This test was constructed at Michigan State University as a part of an inter-university project, entitled The Co-operative Study of Evaluation in General Education, which was directed by Paul Dressel. The items used in the test were devised and tested by project workers at twenty different institutions, and the test was finally constructed by Dr. Dressel. The instrument is a 52-item scale of objective questions designed to measure the main abilities thought to be involved in the problem-solving aspect of critical thinking--the ability to recognize and define a problem, to select information pertinent to its solution, to recognize stated and unstated assumptions, to formulate and evaluate hypotheses, and to judge the validity of inferences from the evidence given.[21]

III. IT IS HYPOTHESIZED THAT THE EXPERIMENTAL GROUP WOULD, AT THE END OF THE EXPERIMENT, SCORE HIGHER ON THE AMERICAN COUNCIL ON EDUCATION'S CRITICAL THINKING TEST, FORM G THAN WOULD THE CONTROL.

The fourth measure used was comprised of the Rokeach Dogmatism Scale and the Rokeach Rigidity Scale. Rokeach has distinguished between the two ways of being resistant to change in the following manner:

> . . . [Rigidity] refers to the resistance to change of single beliefs [or sets or habits], and the second [dogmatism] refers to the resistance to change of systems of beliefs. For example, we ordinarily say that a person is performing a task rigidly, not dogmatically. The research literature contains references to studies showing that rats are under certain conditions rigid, but hardly dogmatic, or closed in their belief system. Similarly, there are studies that show that the feeble-minded and the brain-injured are rigid (also compulsive, pedantic, perseverative, and inflexible), but again, not dogmatic or closed. Conversely, in everyday life we speak of a dogmatic rather than a rigid theorist, or Marxist, or Freudian . . . to the extent a person is said to be characteristically dogmatic or closed in his thinking, the preservation of his total system will be at stake rather than the . . . preservation of a particular belief in his system.[22]

The Rigidity Scale is composed of 22 items; the Dogmatism Scale (Form E) contains 40 items. Items are worded so that the subject can respond on a six-point scale ranging from "I agree very much" to "I agree very little." The lower a student's score, the less dogmatic and rigid the scales indicate that he is.

In our previous research with able high school students we found that these Rokeach scales had significantly differentiated students who described themselves as creative intellectuals from those who did not choose this orientation as a self-description. However, as the present research progressed, we made two studies which suggested that the prior results (low scores related to creative intellectuality) on these Rokeach scales might not be confirmed. First, we made a content analysis of our films and textbook and found that (as we had planned) there was much stress on certain kinds of values as desirable. For example, our film models and other individuals who were featured in numerous biographies and biographical sketches were chosen as creative, effective and concerned people. They were individuals who planned for the future (had a sense of future time perspective), who had a sense of dedication and commitment to their work and to causes of a humane and altruistic nature and had strong belief in themselves (a sense of destiny). Our second survey was a study of the Rokeach items. As we studied these, we found that individuals who agreed strongly with such items as:

a) If given the choice I would do something that would be of great benefit to the world.

b) It is when a person devotes himself to an ideal or cause that his life becomes meaningful.

c) While I don't like to admit this even to myself, I sometimes have the ambition to become a great man, like Einstein, or Beethoven, or Shakespeare.

d) The main thing in life is for a person to want to do something important.

were considered Dogmatic and/or Rigid. Thus, although our materials generally led students toward the kind of open-mindedness Rokeach[23] describes, there was a fundamental disagreement in a few areas. However, our hypotheses were made at the outset of the program and, for this reason, the one relating to the Rokeach scales is stated below as it was drawn prior to the experiment.

IV. IT IS HYPOTHESIZED THAT THE EXPERIMENTAL GROUP WOULD, AT THE END OF THE EXPERIMENT, SCORE LOWER ON THE ROKEACH DOGMATISM SCALE, FORM E, AND THE ROKEACH RIGIDITY SCALE THAN WOULD THE CONTROL.

2. Informal Measures--The Creative Intellectual Style

In our earlier study with high school students, we found that although the tests which effectively differentiated more creative from less creative adults seemed to contribute to our understandings of the more and the less creative adolescents, there were some ways in which these instruments were inadequate for a young population. The adult tests did not tell us what the interests of these adults had been when they were fourteen and fifteen. We did not know, for example, how the adolescent plans for the future of the highly creative adults had differed from those of the less creative adults, nor did we know the differences in self-descriptions between the two groups. Thus, we decided to use instruments that we had developed in our earlier research with superior adolescents and that had already shown promise in distinguishing the more creative from the less creative young person.

These informal instruments are refinements of measures developed during a five-year period (1957-1962) of studying gifted adolescents. They include the Student Interest Survey Scales (incorporated into the Student Interest Survey V), the Reasons for Occupational Choice, the Student Profile Check and the Ability Self-Concept rating.

The Student Interest Survey (SIS) is a questionnaire that elicits information on student family background, current interests and activities, attitudes toward school and learning, and plans for the future. Within this questionnaire are three scales (referred to subsequently as the SIS Scales) comprised of items that had significantly differentiated the responses of students identified (in an earlier study on the Student Profile Check) as creative intellectual, studious and social leader on previous surveys.*

V. IT IS HYPOTHESIZED THAT THE EXPERIMENTAL GROUP WOULD, AT THE END OF THE EXPERIMENT, SCORE HIGHER ON THE STUDENT INTEREST SURVEY V CREATIVE INTELLECTUAL SCALE THAN WOULD THE CONTROL.

The second informal measure, Reasons for Occupational Choice (ROC), consists of a checklist of nine possible reasons for choosing a career, with the students being asked to pick the three reasons most important to themselves. This instrument had been refined from a longer list of items which had previously been a part of the Student Interest Survey.* Each of the nine reasons had significantly differentiated students identified as studious, creative intellectual or social leader on the Student Profile Check, with three of the choices identified as studious reasons, three as creative intellectual reasons, and three as social leader reasons. For the analysis (made at the completion of the present study), the nine items were combined in these groups of three in accordance with the student types.

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*See Appendix for further information.

VI. IT IS HYPOTHESIZED THAT THE EXPERIMENTAL GROUP WOULD, AT THE END OF THE EXPERIMENT, CHOOSE MORE INTELLECTUAL REASONS FOR OCCUPATIONAL CHOICE ON THE REASONS FOR OCCUPATIONAL CHOICE INSTRUMENT THAN WOULD THE CONTROL.

A third measure, Student Profile Check, is a set of three descriptions of student "types" (creative intellectual, studious and social leader), which have been developed and refined over a period of years, beginning in 1959 and tested formally in the school year 1960-61.[24] Students are asked to check the type of student that most nearly describes them.

VII. IT IS HYPOTHESIZED THAT THE EXPERIMENTAL GROUP WOULD, AT THE END OF THE EXPERIMENT, CONTAIN A HIGHER PROPORTION OF STUDENTS WHO CHOSE THE CREATIVE INTELLECTUAL PROFILE ON THE STUDENT PROFILE CHECK THAN WOULD THE CONTROL.

The fourth assessment, the Ability Self-Concept rating, consists of a single question in which the students are asked to rate their ability in relation to their classmates as above average, average or below average. This instrument had been used in a previous study concerned with ability grouping[25] and had significantly differentiated among students of varying abilities; the superior students rated themselves higher than the average students, and the average students rated themselves higher than the slow students.

VIII. IT IS HYPOTHESIZED THAT A SELECTED GROUP OF HIGHLY CREATIVE STUDENTS* FROM THE EXPERIMENTAL GROUP WOULD, AT THE END OF THE EXPERIMENT, RATE THEIR ABILITY MORE POSITIVELY ABOVE AVERAGE ON THE ABILITY SELF-CONCEPT RATING THAN WOULD A GROUP OF LOW CREATIVE STUDENTS FROM THE EXPERIMENTAL GROUP. IT IS FURTHER HYPOTHESIZED THAT THE EXPERIMENTAL GROUP AS A WHOLE WOULD, AT THE END OF THE EXPERIMENT, RATE THEMSELVES MORE POSITIVELY ON THE ABILITY SELF-CONCEPT RATING THAN WOULD THE CONTROL.

3. Informal Measures--The Feminine Dimension

In addition to the concern with the education and guidance for gifted adolescents in general, the research has been especially concerned with the gifted girl: how to make her aware of her creative potential, to encourage her to choose a high level career, and to increase the acceptance (by both boys and girls) of women who do choose life styles that are commensurate with their abilities. The study has also been directed toward developing the much needed social concern and humanitarian beliefs (often referred to in the literature, see Chapters III and IV, as "feminine" qualities) among both boys and girls. These objectives became clarified as the films and text were completed and as we watched student reactions. Much of the prejudicial and stereotypical thinking seemed centered in the area that we designated as acceptance of women and general humanitarian-altruistic attitudes.**

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*"High" creativity was defined as scoring at least one standard deviation above the mean on at least three OPI scales; a parallel definition for "low" creativity was used.

**Another outlook generally considered feminine and widely rejected by the boys was aesthetic values. These were tested with two formal instruments (see aesthetic scales on OPI and A-V-L) and introduced through the Aesthetic World in the Four Worlds Textbook.

To measure differences in the acceptance of both the self-actualization of women and in the acceptance of more humane ways of thinking between experimental and control groups, informal instruments were developed. These include the Acceptance of Women Scale, Self-Actualization in Women and the Humanitarian-Altruism Scale and were administered at the end of the experimental year.

The Acceptance of Women Scale is comprised of true-false items that asked for the testee's acceptance or rejection of statements of fact, opinion and prejudice that are relevant to the acceptance of women as self-realizing individuals who must of necessity engage in diverse roles, including creative activities and professional endeavors. The scale contains items which are both positive and negative in relation to acceptance of women, and a high scorer was assumed to hold more favorable attitudes toward diversified roles and self-actualization in women than a low scorer.

IX. IT IS HYPOTHESIZED THAT THE EXPERIMENTAL GROUP WOULD, AT THE END OF THE EXPERIMENT, SCORE HIGHER ON THE ACCEPTANCE OF WOMEN SCALE THAN WOULD THE CONTROL.

The second informal measurement, Self-Actualization in Women, is a set of three paragraph descriptions of girls. Many of the values specified in the Acceptance of Women Scale are included in these paragraphs. The first description (level 1) portrays a "strictly female female" who does not plan to attend college or to develop a distinct identity; the second (level 2) describes a girl who plans to attend college for a year or two and then marry--she tends to reflect in her development the needs and interests of her husband and children rather than to develop and sustain a personal style; and the third (level 3) portrays a girl who wants to graduate from college and perhaps attend graduate school, to become creative artistically and intellectually as well as biologically and to contribute something to the wider world. The instrument instructs girls to make two types of checks: first, to check the paragraph which describes them as they think they really are; and second, to check the paragraph which describes them as they would like to be ideally. The boys were asked to check the description most like the kind of wife they would prefer (both really and ideally).

X. IT IS HYPOTHESIZED THAT THE EXPERIMENTAL GROUP WOULD, AT THE END OF THE EXPERIMENT, CHOOSE LEVEL 3 OF THE DESCRIPTIVE PARAGRAPHS ON THE SELF-ACTUALIZATION IN WOMEN INSTRUMENT MORE OFTEN THAN WOULD THE CONTROL.

The Humanitarian-Altruism Scale is included in the Feminine Dimension because humanitarianism traditionally has been seen in our society as a feminine value. Women, more than men, appear to have strong feelings of compassion for their fellow men. For example, on the social scale of the A-V-L the mean scores for college girls are much higher than the mean scores for college boys. However, it was a purpose of the present study to suggest to the gifted boys that compassion is a quality needed by all human beings and is characteristic of those most advanced in an ethical and moral sense and thus should not be considered exclusively feminine. The program was intended to support both the girls and the humanistically inclined boys in their views, to help them value their altruistic and humanitarian tendencies.

The Humanitarian-Altruism Scale is composed of items that ask students to what extent they agree (+1 to +3) or disagree (-1 to -3) with statements presenting characteristically humanitarian-idealist or technologist-realist points of view. The statements to a great extent involve the making of a choice on the part of a student to commit himself (at least on paper) to taking part (even if this involves personal hardship) in various forms of social action, including Peace Corps activities.

XI. IT IS HYPOTHESIZED THAT THE EXPERIMENTAL GROUP WOULD, AT THE END OF THE EXPERIMENT, SCORE HIGHER ON THE HUMANITARIAN-ALTRUISM SCALE THAN WOULD THE CONTROL.

In summary the following hypotheses are proposed:

1. It is hypothesized that the experimental students will become more accepting of creative values and that their own attitudes and interests will become closer to the "creative norm" than the control students' scores. Formal measures chosen to test this hypothesis include the Originality, Complexity, Estheticism, Theoretical Orientation and Thinking Introversion scales of the Omnibus Personality Inventory; the Aesthetic and Theoretical scales of the Allport-Vernon-Lindzey Study of Values; the American Council on Education's Critical Thinking Test, Form G; and the Rokeach Dogmatism Scale, Form E, and Rigidity Scale. The informal instruments chosen to support the general hypothesis include the Student Interest Survey V, The Creative Intellectual Scale; the creative intellectual Reasons for Occupational Choice; the creative intellectual Student Profile Check; and the "above average" Ability Self-Concept rating.

2. It is hypothesized that the experimental group will become more accepting of creative and productive life styles in women, including high level careers (this acceptance will involve a broadening of the understanding and acceptance of the possible relationships and interactions between career and marriage for girls), and that the experimental girls will choose more self-actualizing life styles, with more experimental boys choosing the creative and self-actualizing style for their wives, than the control. It is also hypothesized that the experimental group will show a greater degree of social concern than the control group. These hypotheses will be tested by the Acceptance of Women Scale, Self-Actualization in Women instrument and Humanitarian-Altruism Scale.

VI. METHOD: SETTING AND POPULATION, DESIGN AND INSTRUMENTATION

A. Setting

1. Statistics supplied by John Thalen, Michigan State University Professor Emeritus of Sociology and Demographer in the Institute for Community Development.

2. John L. O'Donnell et al., Economic and Population Base Study of the Lansing Tri-County Area: An Interindustry Relations Analysis (East Lansing, Michigan: Bureau of Business and Economic Research, College of Business and Public Service, Michigan State University), Library of Congress Catalog No. 60-62883.

3. Ibid., p. 28.

4. Elizabeth Monroe Drews, Student Abilities, Grouping Patterns, and Classroom Interaction: Final Report of the Cooperative Research Program, 608, U.S. Office of Education, "The Effect of Homogeneous and Heterogeneous Ability Grouping in Ninth Grade English Classes with Slow, Average, and Superior Students" (East Lansing, Michigan: Office of Research and Publications, Michigan State University, 1963).

5. Statistics supplied by John Thalen, op. cit.

6. Drews, op. cit.

7. The Lansing-East Lansing area has approximately 200 churches, several active and thriving little theater groups which present both contemporary plays and classical drama, and a large civic center in the city of Lansing which not only has a wide variety of ongoing programs but also attracts numerous conventions to the city. The Lansing park system is reputed to be among the finest in the country. There are some 63 parks in the Greater Lansing area, including a zoo, an arboretum, specimen gardens, and 46 scheduled summer playgrounds. There are also 74 baseball diamonds, two outdoor swimming pools, ten indoor pools and seven public golf courses. The Y.M.C.A. and the Y.W.C.A. offer a number of programs for both adults and young persons. The school system in Lansing provides a wide variety of evening courses which allow any interested citizen (except teenagers) to take subjects ranging from pottery making to "great books" for a minimal fee. At the heart of the city is a fine new public library operated by the public schools, and nearby is the Michigan State Library and the Michigan Historical Museum. The State Capital itself and other public buildings are near the city center. On the Michigan State University campus five miles away there

are extensive historical and natural science displays in attractive museums.

Art exhibits are always available and there is a new art museum in the Kresge Art Center located on the University campus. In the area there are nine motion picture theaters, including several that exhibit foreign films. There are five radio and three television stations (including an educational TV station) in the area, and the city of Lansing supports a symphony orchestra. In addition, the University offers a large number of theater, lecture and concert events; and during the year some of the most outstanding ballet, opera and theater groups in the world appear. Educational opportunities are not limited to the University; there is also a large community college and a business university.

8. Survey made in Dwight Rich Junior High School, Lansing, Michigan.

9. Hughes Mearns, Creative Power: The Education of Youth in the Creative Arts (New York: Dover Publications, Inc., 1958).

10. Francis V. Rummell and C. Montgomery Johnson, "Bill Lane's Students Win the Prizes," Reader's Digest, Vol. 66, January, 1955, p. 29.

C. Design and Procedures

11. Donald T. Campbell and Julian C. Stanley, "Experimental and Quasi-Experimental Designs for Research on Teaching," N. L. Gage (ed.), Handbook of Research in Teaching (Chicago: Rand McNally and Co., 1963), pp. 171-246.

D. Instruments and Procedures

12a. Drews, op. cit., and also 12b. Drews, THE CREATIVE INTELLECTUAL STYLE IN GIFTED ADOLESCENTS: Motivation to Learn: Attitudes, Interests, and Values, Report I in a series of three; Final Report of the Cooperative Research Program, E-2, U.S. Office of Education, "A Study of Non-Intellectual Factors in Superior (Average, and Slow) High School Students" (East Lansing, Michigan: Office of Research and Publications, Michigan State University, 1964).

13. Some of the instruments have been used at the Institute of Personality Assessment and Research at the University of California in Berkeley; others were used in the Center for the Study of Higher Education, also in Berkeley.

14. Paul A. Heist and Phoebe A. Williams, The Omnibus Personality Inventory (Berkeley, California: Center for the Study of Higher Education, University of California, 1957).

15. Gordon W. Allport, Philip E. Vernon, and Gardner Lindzey, Study of Values: A Scale for Measuring the Dominant Interests in Personality (Boston: Houghton-Mifflin Co., 1960).

16. This test was developed by the Cooperative Study of Evaluation in General Education, Paul L. Dressel, Director (East Lansing, Michigan: Michigan State University, 1953).

17. Milton Rokeach, Scale of Dogmatism and Scale of Rigidity (East Lansing, Michigan: Michigan State University, 1956).

18. Jonathon R. Warren and Paul A. Heist, "Personality Attributes of Gifted College Students" (Berkeley, California: University of California, Center for the Study of Higher Education), mimeographed paper.

19. Drews, THE CREATIVE INTELLECTUAL STYLE IN GIFTED ADOLESCENTS, Report I, op. cit.

20. Allport, op. cit., p. 3.

21. Information obtained through personal communication with Dr. Irvin Lehmann of the Evaluation Services Department, Michigan State University.

22. Milton Rokeach, The Open and Closed Mind: Investigations into the Nature of Belief Systems and Personality Systems (New York: Basic Books, Inc., 1960), p. 183.

23. Ibid.

24. Drews, THE CREATIVE INTELLECTUAL STYLE IN GIFTED ADOLESCENTS, Report I, op. cit.

25. Drews, Student Abilities, Grouping Patterns, and Classroom Interaction, op. cit.

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PART THREE:

FINDINGS AND IMPLICATIONS

VII. RESULTS AND DISCUSSION

This study investigated a number of creative attitudes and values and two distinctive patterns which we have termed the creative intellectual style and the feminine dimension. All aspects of the work were closely related, however, and the study is of the genre of creativity research* which concerns itself with personality development and life styles. Several standardized instruments have been used, each of which has been tested extensively in other studies.** In addition the study of both the creative intellectual style and the feminine dimension (particularly as these qualities are exhibited by adolescents) have been long term interests of the investigator.[1] The informal measures which were used to examine the creative intellectual style had been developed in previous research and were adapted and refined for use in this study. The feminine dimension (and in the present research the focus has been particularly on creative attitudes and values in relation to this dimension) was measured by informal instruments which were developed during the course of the investigation.*** Findings relating to the creative intellectual style, as measured by both formal and informal instruments, are presented and discussed in Section A. of this chapter, and those relating to the feminine dimension, as measured by informal measures, are reported in Section B.

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*We refer here to the work Murray and White have done in the study of lives and to MacKinnon's work at IPAR. (See appendix for references.)

**Institute of Personality Assessment and Research and Center for the Study of Higher Education.

***We plan to continue work on the development of these instruments in subsequent research.

The formal and informal measures concerned with creative intellectual attitudes, interests and values were administered as pre- and post-tests to both the experimental and control ninth grade groups. However, as was indicated above, our decision to investigate the feminine dimension was made after the study was under way, and thus measures to investigate this dimension were administered only in post-testing. The instruments that were developed to probe this area were concerned with self-actualization in superior girls and women and with the valuing of humanitarian and altruistic ways of thinking. Obviously the concern with psychological maturity in girls and women comes easily under the rubric of the feminine dimension. The greater social concern of women noted in personality studies and by social commentators has been referred to in Chapter II (pp. 62-64). The design and intent of this research included an effort to help boys understand and accept the need of gifted girls to develop and express their intellectual talents as well as their aesthetic and philosophical interests and to be open to all areas of psychological growth. It was also held as desirable for boys to become more altruistic and humanely concerned, and thus, to move toward the feminine norm.*

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*The aesthetic scales of the OPI and A-V-L and some of the other scales which touched on contemplative and intuitive ways of thinking are also considered aspects of the feminine dimension.

A. Creative Intellectual Values

1. Formal Measures

Omnibus Personality Inventory (Table 1): At the end of the year, the total experimental group scored significantly higher (beyond the .05 confidence level) on the Originality, Thinking Introversion and Theoretical Orientation scales of OPI than did the control. Thus, in the case of three of the five OPI scales used in the present study, Hypothesis I (as stated on pp. 185-186), was borne out. In the case of the Complexity and Estheticism scales, although the experimental group did not score significantly higher than the control at the end of the year, the experimental group's total scores were somewhat higher. In other words, in no case were the experimental students' scores (on the five scales of the OPI that were used in this study) the reverse of the hypothesized direction.

Certain sex differences were noted. Girls scored higher throughout on the aesthetic dimension and boys had higher scores on theoretical orientation. At post-testing, the experimental girls scored significantly higher than control girls on the Estheticism, Thinking Introversion and Theoretical Orientation scales. There were no significant differences between experimental and control boys at post-testing.

In the case of the Theoretical Orientation scale, there were pre-test differences with the total experimental group scoring significantly higher than the control group. A study of gains was made in this case which showed that the experimental group made somewhat greater gains, but not significantly so. The pre-test differences on the Theoretical Orientation scale were not significant for either boys or girls when considered separately.

Table 1.

MEAN SCORES ON THE OMNIBUS PERSONALITY INVENTORY FOR BOYS, GIRLS AND TOTALS IN EXPERIMENTAL AND CONTROL CLASSES

	Pre-Testing[a]		Post-Testing[a]	
	Exp.	Cont.	Exp.	Cont.
Boys				
Originality	45.93	44.06	47.60	45.87
Complexity	52.52	51.79	55.05	54.43
Estheticism	41.41	41.34	40.02	40.63
Theoretical Orientation	50.16	48.36	50.78	48.59
Thinking Introversion	45.59	43.79	46.62	44.33
Girls				
Originality	46.49	45.21	49.25	47.03
Complexity	52.62	52.32	54.56	52.29
Estheticism	47.28	46.21	50.63	• 47.33
Theoretical Orientation	45.70	43.14	46.97	• 42.98
Thinking Introversion	46.95	45.08	49.98	• 45.86
Totals				
Originality	46.22	44.73	48.47	• 46.55
Complexity	54.57	52.10	54.80	53.17
Estheticism	44.42	44.19	45.58	44.58
Theoretical Orientation	47.87	• 45.31	48.78	• 45.29
Thinking Introversion	46.29	44.54	48.39	• 45.23

[a] Pre-test differences were tested with a two-tailed *t* and Post-test differences with a one-tailed *t*.

• Indicates significances at least at the .05 confidence level between adjacent means.

Allport-Vernon-Lindzey Study of Values (Table 2): As the table shows, Hypothesis II (p. 187) was partially confirmed. At post-testing the total experimental group scored significantly higher than the control group on the Theoretical scale. The second part of Hypothesis II, i.e., that the experimental treatment would significantly influence the students' scores on the Aesthetic scale, was borne out in the case of the girls, however it was confirmed for neither the boys nor for the total group.*

Rokeach Dogmatism Scale and Rigidity Scale (Table 3): No significant differences between experimental and control groups were found on the Rokeach scales at pre- or post-testing for boys, girls or totals. Thus Hypothesis IV (p. 190) was not confirmed.

American Council on Education Critical Thinking Test, Form G (Table 4): On the Critical Thinking Test marked differences were found at the end of the experimental year, and, thus, Hypothesis III (p. 188) was confirmed. At post-testing the experimental boys scored significantly higher than the control boys, the experimental girls scored significantly higher than the control girls, and the total experimental group scored significantly higher than the total control group. No significant differences between the experimental and control groups (for boys, girls or totals) were found at pre-testing.

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*In addition to the above results, it was found at pre- and post-testing the experimental group scored significantly lower than the control group on the Social scale of the Study of Values. However no study of gains was made for these results since it was not hypothesized that the course would influence students' performance on this scale.

TABLE 2

MEAN SCORES ON THE ALLPORT-VERNON-LINDZEY *STUDY OF VALUES* FOR BOYS, GIRLS AND TOTALS IN EXPERIMENTAL AND CONTROL CLASSES

	Pre-Testing[a]			Post-Testing[a]		
	Exp.		Cont.	Exp.		Cont.
Boys						
Theoretical	45.86		45.38	48.38	*	45.21
Economic	43.73		43.15	44.07		43.15
Aesthetic	32.02		33.43	33.25		34.40
Social	33.79	*	37.64	32.25	*	36.00
Political	43.70		42.49	44.48		44.04
Religious	39.77		38.04	37.77		37.21
Girls						
Theoretical	39.15		38.08	38.31		36.46
Economic	38.07		38.61	35.72		37.65
Aesthetic	37.48		36.89	40.85	*	37.53
Social	42.30		42.36	42.86		43.51
Political	39.64		40.80	39.98		41.26
Religious	42.95		43.00	42.83		43.59
Totals						
Theoretical	42.36		41.12	42.97	*	40.03
Economic	40.78		40.50	39.59		39.90
Aesthetic	34.86		35.45	37.33		36.25
Social	38.22	*	40.40	37.95	*	40.44
Political	41.58		41.50	42.12		42.42
Religious	41.43		40.94	40.49		40.98

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[a] Pre-test differences were tested with a two-tailed *t* and post-test differences with a one-tailed *t*.

*Indicates significances at least at the .05 confidence level between adjacent means.

TABLE 3

MEAN SCORES ON DOGMATISM AND RIGIDITY FOR BOYS, GIRLS AND TOTALS IN EXPERIMENTAL AND CONTROL CLASSES

	Pre-Testing[a]		Post-Testing[a]	
	Exp.	Cont.	Exp.	Cont.
Dogmatism				
Boys	176.89	176.98	170.22	172.09
Girls	164.00	165.77	166.02	163.86
Totals	170.74	170.51	168.02	167.28
Rigidity				
Boys	102.40	105.26	95.04	96.79
Girls	98.00	96.41	91.64	92.67
Totals	100.15	100.09	93.25	94.38

[a] Pre-test differences were tested with a two-tailed *t* and post-test differences with a one-tailed *t*.

TABLE 4

MEAN SCORES ON THE TEST FOR CRITICAL THINKING FOR BOYS, GIRLS AND TOTALS IN EXPERIMENTAL AND CONTROL CLASSES

	Pre-Testing[a]		Post-Testing[a]		
	Exp.	Cont.	Exp.		Cont.
Boys	27.48	26.14	32.00	•	29.42
Girls	28.03	27.73	32.97	•	31.05
Totals	27.78	27.07	32.51	•	30.38

[a] Pre-test differences were tested with a two-tailed *t* and post-test differences with a one-tailed *t*.

• Indicates significant differences at the 0.05 confidence level.

Discussion of Results on Formal Measures

The results of the Omnibus Personality Inventory and the Allport-Vernon-Lindzey Study of Values demonstrate that, as hypothesized, the experimental treatment affected the students' motivation to learn and openness to psychological growth--especially in the areas of theoretical orientation, aestheticism, originality, and thinking introversion (philosophical introspection). Thus, we can infer that if we consider it important for students to develop an affinity for original thought, theoretical conceptualization, contemplative and philosophical inclinations, and aesthetic awareness, ways can be found to encourage these modes of growth.

Student comments and personal evaluations of the effect of the experimental course offer insights into which aspects of the experimental treatment contributed most directly to their growth in these areas.* Theoreticians hold that diverse and serendipitous approaches are essential to the formulation of original ideas and to creative expansion of fields of knowledge. In her reaction to the Harold Taylor film, an experimental girl indicates that she is aware of the value of search. She reported:

> This movie illustrates the fact that you don't have to go into one occupation or even into one field; you can go into many fields. And in these fields, you don't just get information from one source, you should get it from many sources and study many aspects of the subject . . . I liked this movie because it gave me a whole new concept on learning that, I think, is worth considering.

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*These are verbatim quotes taken from the written reactions of experimental students when the course was midway and when it was completed. (See Appendix for evaluation forms used.)

Another student seemed to feel that her own original ideas were more acceptable and did not need to be hidden since "The people in the films . . . made me feel like my ideas weren't so crazy after all, with important people stating them!" And some students appeared to conclude that what the course did not demand, as well as what it did offer, encouraged original growth. One boy commented that in the experimental class he could "get away from the grind of school books. In this class I can study and work by myself and not be bothered with homework as in other classes."

The experimental course not only stimulated diverse and original thoughts, it also stressed the need to organize this diversity into consistent and comprehensive cognitive structures. Such formulations seem directly relevant to the development of theoretical thinking

At the end of the course, one student reflected that:

> At first I collected all the interesting new ideas in books and magazines I could find and this was very exciting and a lot of fun. Then I got confused because my old ideas won't handle all this new information. The four worlds helped me to get out of this mess because it showed me the kind of ideas people have to have if they want to learn a lot and still have it all make sense.

Another student expressed his recognition of the importance of over-riding concepts in saying that:

> This course has stimulated me into finding out hundreds of things I never realized or even had the slightest inkling of. I never knew that deep philosophical theories could be so interesting and captivating. Many things like: EDUCATION; God and Evolution; HUMANITY.

Students reported that they not only enjoyed the cognitive challenge of new ideas, they also found that many of these ideas had relevance to their personal lives and most private thoughts. One girl found that she

> . . . think[s] a lot more. When I used to have a few minutes with nothing planned or nothing at the moment to do, I'd just pick up a magazine or pick up the phone or turn on the TV. But now I can sit for more than an hour just thinking.

Another girl reported that:

> I learned that everyone needs time when they can just think, time to be by themselves and time to be alone, to step on the outside and look in to see if what they are doing is worth it.

Boys also wrote about thinking and about some of their concerns, particularly in terms of the human condition and "responsibility." A devoted science student admitted that "without this course, I'm afraid I might have gone and helped do something, or done something, which would affect world relations without thinking (like the atom bomb)." And finally, a boy--whom one feels has already done a great deal of thinking--was relieved to "find out that other people have deep interests . . . I never knew that there were other people that had well defined personal goals and well maintained philosophies."

Students' comments on their aesthetic growth emphasized that they liked broad exposures and new experiences. One boy felt that there were "many things I found interesting I probably never would have discovered on my own. Art and music were much more interesting and alive than I thought they would be." Another boy reported that he appreciated:

> . . . an opportunity to read on subject matter that I wouldn't go hunting up just for the sake of reading it. The natural and the technological world I do real a lot about, but I have never really indulged in the aesthetic worlds. So for this quality alone I think the course was worth it.

While the boys stressed exposure, the girls more often emphasized aesthetic experiencing. In response to the Robert von Neumann film, one girl started

> . . . a new project of my own in silver sculpture, since this film gave me a new idea in art. . . . It has a lot of possibilities and I hope my project will be half as successful as Mr. Neumann's first pieces might have been.

The same film prompted a boy to comment

> . . . the film was very informative and inspiring. Here, and here alone, were answers to the question 'Why does a person create?' 'What kind of foundation is a man like this built on?'

Aesthetic activity and experience were revitalized for one girl who felt that out of all the possibilities that the course had offered

> The aesthetic world has really done the most good. Maybe this is because a person is less exposed to the arts than they are to such things as plants, factories and science, or human problems. I once had an interest in drawing and designing, but for some reason gave it up. Now that I have read about art in the text and have gone to the Van Gogh exhibition, I have become extremely interested in it again and am drawing and designing constantly whenever I have a moment's time.

Although the total scores of experimental and control groups were significantly different on three of the OPI scales (Originality, Thinking Introversion, and Theoretical Orientation), when boys and girls were considered separately, sex differences were found. No significant differences in pre- and post-test mean scores were found between experimental and control boys.* However, when the girls were considered separately, the experimental girls scored significantly higher than the control girls on two of the above-mentioned OPI scales and also higher on the Esthetics scale. Similarly, at post-testing, the experimental girls scored significantly higher on the Aesthetics scale of the A-V-L than did the control girls. The experimental boys scored higher on the Theoretical Orientation scale of the A-V-L Study of Values. These results suggest that, in the areas of intellectual and aesthetic values, the girls in the experimental course responded with greater growth than did the boys, whereas the boys gained in theoretical orientation.

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*Although experimental boys did score significantly higher than control boys on the Theoretical scale of the A-V-L.

Although these findings were not entirely as hypothesized, they were not surprising. As was mentioned in Chapter III, the cognitive styles which lead to theoretical formulations and developed scholarly talent are dimensions in which men characteristically excel and women often receive overt discouragement. On the other hand, the more stereotypically feminine style--expressed in terms of intuitive thinking, aesthetic awareness and humane concern--is not highly valued in contemporary America and seldom is emphasized or even mentioned in the schools. Thus it is understandable that girls, who are disposed toward creative and intellectual concerns, would show greater capacity for growth of an aesthetic, intuitive and humanitarian nature, once given encouragement, than would boys. Boys may easily interpret such forms of creative expansion as incompatible with popular concepts of masculinity. It is likely, therefore, that they were resistant to this aspect of the course, and that this resistance was reflected in the lower scores received by boys on the aesthetic scales of the OPI and A-V-L and on some of the OPI scales which reflected emotional sensitivity. This resistance was also reflected in lower scores for boys on the Humanitarian-Altruism Scale and on two scales that reflected acceptance of the idea that girls and women should develop in creative and self-actualizing ways. The girls, however, who participate in a somewhat different culture and one which renders intuitive and aesthetic values more attractive, responded strongly and favorably to the presentation of these values in the course. There will be further discussion of these cultural differences when considering the informal instruments in the "feminine dimension."

The Rokeach Dogmatism Scale and the Rokeach Rigidity Scale did not distinguish the experimental and control groups at either pre- or post-testing in this experiment. During the experimental year we carefully inspected all the items on the two scales in terms of our aims and materials and found, as a result of this analysis, that a number of the specific statements in these scales contradicted some of the basic concerns of the experimental course. This was particularly true in relation to our dedication to humane principles and our belief that a development of a personal "sense of destiny" (the idea that an individual can and should make a difference in his society) is desirable. Since our course was designed to encourage the belief that ideals and commitments--as well as openness and flexibility (i.e., "non-rigid" and "non-dogmatic" behavior)--contribute to the good life, an increase in open-mindedness could easily be nullified by an equally strong increase in idealism. A further discussion of this problem can be found in Chapter VI.

We have already observed, in reporting both the OPI and the A-V-L results, strong indication that the intellectual values of the experimental group were influenced. Growth in students' willingness to think originally and to organize ideas and information into theoretical structures were particularly evident. These findings also are supported by the encouraging results of the Critical Thinking Test.* Experimental boys, girls and totals scored significantly higher at post-testing than did the control students. These results imply that when students are given an opportunity to examine their own ideas and the ideas of others in class discussions, when they are encouraged to approach educational materials provided for them with a critical eye (rather than asked to accept and repeat), and when they are exposed to models who demonstrate constructive critical thought, then the students' capacity for critical thought is thereby increased.

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*For ten years the principal researcher has been studying the processes of teaching critical thinking. However, until the time of the present study she has been unable to show through a pre- and post-test design that various critical thinking methodologies had any effect on students' ability to think critically. It was, then, with considerable joy that she found that the methods of teaching critical thinking in the present experiment seemed to have a testable result.

Again, student comments offer insight into the processes these test scores reflect. Evidence of the development of critical thought is demonstrated in the following comment:

> I now have many set opinions about things such as foreign aid, surplus, etc., but I have learned to listen to other opinions and if they are stronger and better formed than mine to consider them . . . . I've learned to hear facts that I don't want to because they might prove me wrong, and if they do to throw out my old concept for a new one.

One of the most idealistic girls in the study found that "Before, I often reached a conclusion by emotion rather than reasoning. But now it's the other way around." Another girl reported that her first efforts to make decisions on the basis of independent and critical thought

> . . caused some confusion, for I was used to being told what to do, how to do it, and when. When you are suddenly thrown into making decisions, thinking for yourself, and communicating your thoughts to others is hard at first, but I think that this is--(and should) be happening.

The results of the Critical Thinking Test and an inspection of students' comments suggest that not only were intellectual attitudes valued by the experimental students, but an essential intellectual skill was developed.

2. Informal Measures

Student Interest Survey V (Table 5): Hypothesis V (p. 191), predicting that the students in the experimental group would, at the end of the study, score higher on the Creative Intellectual scale of the SIS than would controls, was confirmed.* By the end of the year, significantly more experimental students were showing an interest in creative intellectual activities and reporting valuing such elements of this life-style than was the case with control students. This finding was true for both boys, girls and the total group.

Reasons for Occupational Choice (Table 6): At the conclusion of the program, students in the experimental group chose intellectual reasons for occupational choice on the ROC significantly more often than did control students. Hypothesis VI (p. 192), predicting changes in this direction, was borne out for the total group and for the girls separately.**

Student Profile Check (Table 7): Hypothesis VII (p. 192) was a prediction that at the end of the experiment more experimentals than controls would choose the creative intellectual profile on the Student Profile Check. This hypothesis was partially confirmed. At pretesting, almost two-thirds of the experimental population

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*It will be noted that at the beginning of the experimental year, the only significant difference was on the Social Leader scale for the total group and for the girls separately; the experimental group was lower than the control. This difference was still evident at the end of the study. The situation had apparently not changed. However, we had not hypothesized that there would be changes in this social dimension as a result of the study.

**At post-testing more control students chose SL reasons than did experimentals. This difference was also significant for the girls and the total group.

TABLE 5

MEAN SCORES ON THE *STUDENT INTEREST SURVEY V* SCALES FOR BOYS, GIRLS AND TOTALS IN EXPERIMENTAL AND CONTROL CLASSES

	Pre-Testing[a]		Post-Testing[a]	
	Exp.	Cont.	Exp.	Cont.
Boys				
Creative Intellectual Scale	49.48	48.32	54.41	• 49.40
Studious Scale	50.39	50.23	47.70	48.38
Social Leader Scale	49.82	52.00	50.66	52.00
Girls				
Creative Intellectual Scale	52.74	50.44	58.56	• 54.56
Studious Scale	53.08	52.05	46.84	47.58
Social Leader Scale	47.75	• 51.05	47.84	• 51.70
Totals				
Creative Intellectual Scale	51.18	49.56	56.63	• 52.42
Studious Scale	51.79	51.29	47.24	47.91
Social Leader Scale	48.74	• 51.44	49.16	• 51.82

[a] Pre and Post- test of differences between experimental and control groups were tested by the Mann-Whitney U test (sometimes known as Wilcoxin).

• Indicates significant differences at least at the .05 confidence level.

TABLE 6

DISTRIBUTION OF THE THREE MOST IMPORTANT CHOICES FOR EXPERIMENTAL AND CONTROL CLASSES ON REASONS FOR OCCUPATIONAL CHOICE ACCORDING TO CREATIVE INTELLECTUAL, SOCIAL LEADER, AND STUDIOUS REASONS

	Pre-Testing		Post-Testing	
	Exp.	Cont.	Exp.	Cont.
Boys				
Creative Intellectual Reasons	59	62	77	56
Social Leader Reasons	52	30	37	36
Studious Reasons	57	52	54	52
Possible Choices (3 x N)	168	144	168	144
Girls				
Creative Intellectual Reasons	82	78	107 •	89
Social Leader Reasons	36	46	22	43
Studious Reasons	80	74	69	66
Possible Choices (3 x N)	198	198	198	198
Totals				
Creative Intellectual Reasons	141	140	184 •	145
Social Leader Reasons	88	76	59	79
Studious Reasons	137	126	123	118
Possible Choices (3 x N)	366	342	366	342

•Indicates a significant difference ($p < .05$ as tested by chi square) between experimental and control classes on creative intellectual reasons chosen and social leader reasons chosen.

TABLE 7

TOTALS IN STUDENT PROFILE CHECK CATEGORIES AT PRE- AND POST-TESTING

	Studious		Creative Intellectual		Social Loader	
	Pre	Post	Pre	Post	Pre	Post
Experimental						
Boys	39	31	11	19	6	6
Girls	40	35	19	18	5	11
Totals	79	66	30	37	11	17
Control						
Boys	28	26	15	11	4	10
Girls	44	33	12	20	10	13
Totals	72	59	27	31	14	23

Results of chi square and exact probability analysis of profile shifts from Pre to Post:

1. Experimental boys shifted to creative-intellectual significantly more often than to studious or social leader (grouped together) as compared with control boys. ($p < .05$)

2. Experimental boys shifted to creative-intellectual significantly more often than to social leader as compared with control boys. ($p < .005$)

3. Experimental boys shifted from studious to creative-intellectual significantly more often than from studious to social leader as compared with control boys. ($p < .009$)

checked studious, about one-fourth picked creative intellectual, and the rest chose social leader. At post-testing, only about half of the experimental sample picked studious, which resulted in more choices open for both creative intellectual and social leader categories. In comparing the experimental and control groups on the changes in profile check, the experimental boys shifted to the creative intellectual profile significantly more often than to the studious and social leader profiles (grouped together) as compared with the control boys. This was especially significant in comparing the changes to creative intellectual with the changes to social leader (p.<005). However, no significant differences were found between the experimental and control girls* or the total groups.

Ability Self-Concept (Tables 8 & 9): In Hypothesis VIII, (p. 193), the prediction was made that the experimental group as a whole within the total group would rate their ability more positively on the Ability Self-Concept rating than would the control. A parallel hypothesis was to the effect that a group of high creatives (selected on the basis of high OPI scores) within the experimental group would rate themselves as more able than a group of low creatives within the same group. This hypothesis was not borne out. In comparing the experimental and control groups, no significant differences were found in pre- and post-testing for the boys, the girls or the total groups. In addition, a selected group of high creative students was compared with a selected group of low creative students on the Ability Self-Concept and no significant differences were found.

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*Almost all of the control girls who changed to creative intellectual attended one junior high school in which the control group talked extensively with the experimental group about the course.

TABLE 8

COMPARISON OF EXPERIMENTAL AND CONTROL STUDENTS ON PRE AND POST ABILITY SELF-CONCEPT RATINGS

	Experimental			Control		
	A	B	C	A	B	C
Pre-testing						
Boys	0	22	36	0	23	24
Girls	0	24	38	0	30	36
Totals	0	46	74	0	53	60
Post-testing						
Boys	0	19	39	2	16	29
Girls	0	27	35	0	24	42
Totals	0	46	74	2	40	71

No significant differences using chi squares were found for either boys, girls, or totals.

Scale of Choices:

A = Below Average
B = Average
C = Above Average

TABLE 9

COMPARISON OF HIGH AND LOW CREATIVE, AS DETERMINED BY THE OMNIBUS PERSONALITY INVENTORY, EXPERIMENTAL AND CONTROL STUDENTS ON POST ABILITY SELF-CONCEPT RATINGS

	High Creative			Low Creative		
	A	B	C	A	B	C
Boys	0	2	14	1	5	12
Girls	0	9	14	0	7	14
Totals	0	11	28	1	12	26

Discussion of Informal Measures

We have seen that at the end of the year experimental students scored significantly higher on the Creative Intellectual scales of the Student Interest Survey V and Reasons for Occupational Choice than did the control students. This was true of boys, girls and totals on the Student Interest Survey V and for girls and totals on the Reasons for Occupational Choice. These results indicate that not only did school interests change in creative intellectual directions for the experimental students, but also that out-of-school, leisure time and projected future interests and activities also changed in the creative intellectual direction for this group.*

One school-related interest that seemed to have been stimulated to move in creative intellectual directions was reading. Over half of the experimental students mentioned that the course had changed their reading habits. One boy found that:

> Since starting this course I have learned to read the proper material. I learned that I get more out of the Saturday Evening Post than Motor Trend. Aside from reading many magazines from cover to cover, I have become braver in tackling larger books (such as Advise and Consent).

Another student reported:

> My attitudes have changed quite a lot. I used to be very narrow-minded, due from reading very little and having few ideas of my own. Now this has changed. Bertrand Russell has made the biggest impression on me because he's a philosopher and I like his ideas.

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*Reasons for Occupational Choice will be discussed simultaneously with the Student Interest Survey V although they are listed as different hypotheses. Formerly the ROC was part of the SIS V, however due to the special emphasis placed on life-style patterns and future occupations in this study we decided to feature it as a separate scale in this report.

And still another member of the experimental group felt that the most important thing in the course for him was

> . . . a stimulation of reading. I used to read, but I had no idea how fascinating books can be . . . I could talk on and on about my reading.

He also found himself becoming a "bookstore bum and I'm beginning to build a personal library."

Students also indicated that they liked the fact that the course stressed respect for the individual and allowed them freedom to present personal opinions and discuss philosophical issues in the classroom.* As one student commented:

> The understanding of myself has increased greater than anything else. No other class has ever considered the individual important. I think this class shed light on that for many people in this class.

Another boy thought that the class discussions helped him to understand that:

> . . . people are not machines. They are really living creatures with many variable feelings or interests. Before this class was open to me I always thought a person was just the kid next door or my teacher. But now I know more about the deep person behind this face.

And a girl similarly responded to the opportunity to look below the surface by reporting:

> . . . it is really possible to discuss the 'important things in life' at our age. Before this course, I would think this type of discussion was way too deep. It was so exciting to realize that other students also had the same ideas and feelings as I connected with life.

Other student comments support the research findings that there was a change toward greater psychological openness and increased concern with ideas. For many experimental students these changes went beyond "words about the thing" and involved "the thing itself." In fact, the course emphasis on thinking seriously and then taking action, i.e., doing something about one's convictions, seems to have rendered idealism more credible and more acceptable to many of the young people. Several students found Harold Taylor "the most interesting person . . . [since] he broke my idea of a philosopher because he doesn't just think about something, he does something!" The discovery that these are people who actually do something about what they believe in may have a profound effect on what students do and hope to do. This view was beautifully expressed by a girl who reflected:

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*A preference for both of these characteristics in an ideal school are on the creative intellectual scale of the SIS V. See Chapter VI (p. 191) for further information.

> I don't feel so small anymore. Before if there was a problem I was interested in for the value of the world I felt I could do nothing about it. But now I can look forward and I can see what I can do to help now or in the future.

A very thoughtful and quiet boy also found courage to express himself in action and concluded "what better way is there for you to look at yourself than by bringing yourself out from hiding." Observers in the classroom noticed that he had begun to participate in class discussions, and later the action went beyond talk and he helped to organize a collection of magazines and books for home-bound students.

The experimental students carried these new interests and activities one step further--into the future. An essential purpose of the experimental course was to show superior adolescents the higher level occupational possibilities that are frequently not "covered" in the usual social-studies-careers courses. But beyond exposing students to this broader range of possibilities, we were interested in helping them perceive these occupations in greater depth as well. The results on the Reasons for Occupational Choice scale indicate that the films, textbook and discussions helped the experimental students to see the selection of their life's work in new dimensions. Thus, rather than making such a choice on the basis of the more traditional criteria of a conventionally defined career, students began to think about their futures in larger (style-of-life)terms. The commonly held career values of salary, security, working conditions, social prestige, also came to be reconsidered in terms of a value structure that stressed making the fullest use of creative intellectual potentialities.

Student growth in these respects is particularly evident in their reactions to the film models. One boy appreciated being presented with "an accurate picture of a man who really enjoys and gets involved in his work." Another boy felt the Mary Coleman film was

> . . . a good demonstration of how wrapped up and interested a person can get in his occupational field. She worked to improve other people because she felt a need to and she chose an occupation that helped her fulfill her motivation.

One of the most creative girls particularly admired Kay Britten and felt it

> . . . would be wonderful if everyone had some way like her folk music to express themselves and put something of themselves into whatever they did.

Others were impressed with Robert von Neumann because he

> . . . was an excellent example of the artist who really thinks about his work, likes it, and expressed the thought, beauties and actions of nature . . . he seemed very dedicated--his chosen field was a way of life and he loved it.

Although the Student Profile Check partially confirmed our hypothesis that, at the end of the experiment, more experimental than control students would change to the creative intellectual profile, we feel that the results on this measure are largely inconclusive. In our previous studies where there was no effort to enlarge students' knowledge of themselves and the world, the holistic description on the profile check always significantly corresponded to the specific attitudes and interests reflected by such instruments as the Omnibus Personality Inventory and the Student Interest Survey.

The assumption underlying the hypothesis was that a concerted effort which would change specified attitudes, interests and modes of thought would also change the holistic concept of self in the same direction. However, the results now cause us to question that assumption in two respects: (1) Is a holistic concept of self changed as easily and in the same manner as more specific attitudes toward cognitive and affective behavior? and (2) Do the results on this instrument which we have interpreted as being ambiguous bear a direct relationship to any of the goals and methods intentionally built into the experimental treatment to produce other changes? In considering the first of these questions we feel that a further analysis of the results--perhaps several small studies of profile check changes as related to changes on the Omnibus Personality Inventory--might show us that the holistic concept of self is not as easily changed nor changed in the same manner as more specific attitudes toward cognitive and affective behavior. However, until such studies are done we can only offer this as a possible interpretation.

We feel that there is a strong possibility that our efforts to encourage students to question their values and identity contributed to their reactions on this instrument. For example, we tried to break down patterns of prejudice and stereotypic thinking--and yet these very patterns might contribute to having a stable and consistent self-concept. Stability and simplicity of outlook were not our goals. We wished, instead, to stimulate complexity and thinking introversion and openness to new ideas. And it is possible that to the extent to which we succeeded in doing this, to that extent we probably made it more difficult for a student to see himself as a single "type."*

Many student reactions support this as a possible interpretation. These responses range from reconsideration, to indecision, to agitated confusion. One girl in reporting her feelings, wrote that the class had "opened my mind slightly and shown me that I don't really have any idea of what I want to do." Another reported:

> When I used to hear adults talking about teenagers trying to 'find themselves' I thought they were all nuts. I thought 'I know who I am, I'm Barb!' But then I began to see what they meant. I tried to find what kind of personality I had. I tried being aggressive, shy, mean, nice, etc. I'm still trying to find out who I am (besides Barb).

One of the boys who was overtly defiant and rebellious in his attitudes toward the course but also desperately trying to find himself wrote:

> The only understanding of myself I got from this course is that I must be a nut. Reading all this stuff has only served to confuse me about myself. I think I know how Van Gogh felt when he was going crazy.

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*This may have relevance to the observation made by personality psychologists that people become more different from one another as they become more educated, intelligent and creative.

The results on the Ability Self-Concept did not confirm our hypothesis that at post-testing the experimental students would have significantly higher ratings than the control students. This hypothesis was based on the assumption that identification with adults who had great ability and significant achievements would cause the students to increase their estimation of their own ability. This, however, does not appear to have taken place. In fact, it is possible that through exposure to such outstanding human beings, the experimental students developed a more sophisticated concept of what true excellence is and felt their own abilities and accomplishments to be rather modest in comparison. Further student comments have revealed that they increased their estimation of many of their classmates through being exposed to their ideas in class discussions. By thus expanding their frame of reference to include more people worthy of respect and admiration and by raising their standards, experimental students might have had their own feelings of superiority tempered. This must be considered only as a tentative interpretation, however, for such lines of reasoning might lead one to expect that experimental students would have significantly lower post-test ratings than the controls, and the results show that there were no significant differences in either direction.

B. The Feminine Dimension

Acceptance of Women Scale (Tables 10 and 11): Hypothesis IX (p. 194) suggested that at post-testing experimental students would have significantly higher scores than control students on the Acceptance of Women Scale. This hypothesis was confirmed for the girls only. Since the distribution of boys' and girls' scores was so different (the test seemed to have a different meaning

TABLE 10

MEDIANS ON ACCEPTANCE OF WOMEN SCALE

	Experimental		Control
Boys	22		21.5
Girls	27	*	25

*$p \leq .0003$ as determined by the Mann Whitney U test (sometimes known as Wilcoxin).

TABLE 11

COMPARISON OF HIGH AND LOW SCORERS[a] ON ACCEPTANCE OF WOMEN SCALE

	Experimental		Control
Girls			
High Scorers	18	**	7
Low Scorers	10		21
Boys			
High Scorers	13		14
Low Scorers	6		8

[a] High scorers were defined as those students scoring more than one standard deviation above the mean with a parallel definition for low scorers.

**$p \leq .005$ as determined by chi square.

for girls) it was not felt desirable to combine boys' and girls' scores. Thus no totals are given.

When the test results were looked at in a different way, i.e., all the outstanding high and low scores were selected,* it was found that significantly more experimental girls were high scorers than low scorers in comparison with the control girls. No significant difference were found for boys.

Self-Actualization in Women (Tables 12 and 13): The results show that Hypothesis X (p. 195) was largely confirmed. In picking the description most like themselves, significantly more girls in the experimental group preferred Level 3 to either Level 1 or Level 2 for Real and Ideal choices than did the control girls. The experimental boys showed similar results in choosing the kind of wife they expected to have. For their Real choice they picked Level 3 significantly more often than the control boys. However, this difference was not significant on the Ideal choice. Also, the experimental girls who chose Level 3 for both their Real and Ideal choices scored significantly higher on the Acceptance of Women Scale than did the comparable sample of control girls. It is interesting to note that for both the experimental and control groups, Real and Ideal choices, far more girls than boys picked Level 3.

Humanitarian-Altruism Scale (Table 14): Hypothesis XI (p. 194) was partially borne out by post-test results. Experimental girls scored significantly higher on the

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*This was done on the basis of highs being one standard deviation above the mean and lows being one standard deviation below the means for their respective sex groups.

TABLE 12

DISTRIBUTION OF CHOICES ON THE SELF-ACTUALIZATION IN WOMEN

	Real			Ideal		
	1[a]	2	3	1	2	3
Boys						
Experimental	7	34	12	7	34	12
Control	16	25	4	15	23	8
		(p<.02)*			(not sign.)*	
Girls						
Experimental	2	28	32	2	21	39
Control	7	33	21	13	31	18
		(p<.05)*			(p<.0005)*	

[a] Level:
1) No college; 2) some college; 3) college or beyond.
* Differences were tested by chi square.

TABLE 13

MEANS ON ACCEPTANCE OF WOMEN SCALE FOR THOSE GIRLS CHOOSING LEVEL 3 BOTH REALLY AND IDEALLY

	Experimental		Control
Number of girls choosing Level 3 both really and ideally	29		11
Acceptance of Women score	28.24	*	26.00

*$p_t < .05$, as determined by a one-tailed t.

Humanitarian-Altruism Scale than did the control girls. However, the difference between experimental and control boys was not significant.* In both the experimental and control groups, the girls scored markedly higher than the boys.

TABLE 14

MEANS FOR THE HUMANITARIAN-ALTRUISM SCALE

	Experimental		Control
Boys	204.1		205.4
Girls	239.4	*	232.3

*$p < .045$, as determined by the Mann Whitney U test (sometimes known as Wilcoxin).

Discussion of the Feminine Dimension

The results of the Acceptance of Women Scale and the Self-Actualization in Women instrument indicate that the experimental girls, at the end of the program, were more accepting of women who develop their intellectual and creative potentialities and perhaps enter high-level career areas and had higher expectancies for themselves than were the control girls. Many responses made by girls on the course evaluations (mid-term and final) and class discussions bore this out. For example, one wrote in her course evaluation at the end of the year:

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*Totals are not reported since the distributions of boys' and girls' scores were so different.

> I think that the idea of a woman choosing a career has made a deep impression on me. Before, I had longed to choose a career, but I thought most people wouldn't hire a woman.

And a girl remarked in the class discussions: "Dr. Radmore struck me as the kind of person I'd like to be--active, intelligent and interested in medicine." Another girl said, "I hope I can work as hard as Mary Coleman at my career. She uses her time well and does many things to make her life fuller and more interesting." And speaking of the way in which the course made her more aware of higher-level professional areas, one girl commented:

> I think that before we had this class, we sort of dreamed of our occupational ideas for the future and other people's ideas, but this course stimulated our thoughts and made us interested in occupations and ideas we never even thought about before.

Other girls were not so much inspired to go into high-level professional areas, but did find courage to express interest in romantic or daring occupations usually thought of as being masculine. One commented that she had always had in the back of her mind the idea of being a sky-diver, and because of the course she now had the courage to go ahead with plans to work in this high, if not high-level, area. But the more usual comment was similar to that of the girl who wrote, "I really think this course gave me a new outlook. I want to be somebody!"

Not only did more experimental girls than control girls value creative intellectual pursuits for themselves (as shown on the Self-Actualization in Women results), but the experimental girls who chose Level 3, self-actualization, on this instrument as a personal life style scored significantly higher on the Acceptance of Women Scale than did the control girls who also chose Level 3. We can infer from this that the experimental girls were not only more eager for personal opportunities for self realization than were the controls but that they also saw this as a desirable pattern for all women. Beyond this, the experimental girls would seem to have, if we can judge by the content of Acceptance of Women Scale, a broader understanding of the problems women encounter and to be less willing to express prejudice toward women.

As would be expected, the experimental boys did not respond as positively to the feminine dimension as the girls, although they followed a similar trend; that is, by the end of the year the experimental boys expected to have more mature and highly educated wives than did the boys in the control group. One boy, for example, said in class that the Mary Coleman film "dispelled the idea that career women have to be dull and have one-track minds. Mary Coleman shows what a woman can do without neglecting her family." A similar result was found in the humanitarian area. As was mentioned in the discussion of formal measures, altruistic ways of thinking are traditionally looked upon as a feminine pattern. Thus, in our society women are valued for compassion and humanitarianism, while it is "tough-mindedness" in men which is valued. The tacit reasoning seems to be that to get along (and to get ahead) in the hard-boiled, workaday and achievement-oriented world, masculine tough-mindedness is necessary; and the man who is tender-minded, compassionate and gentle will get left far behind.

In the experimental course, we hoped to break down this stereotypic thinking and suggest to the students that humanitarian-altruistic values are appropriate and desirable in both women and men. Just as the experimental girls responded positively to the self-actualization-of-women idea, so did they respond favorably to the humanitarian-altruistic value. As we have seen, by the end of the year the experimental girls scored higher than the control girls on the Humanitarian-Altruism Scale. The student discussions and the written reactions to the elements of the course reveal the girls' humanitarian inclinations. One girl said, "This course has helped me to understand the problems of the world and where I fit in to help solve them. It seems as though my eyes have been opened." And speaking of Albert Schweitzer, whose ideas were included in the Four Worlds Textbook, a girl remarked that the philosopher's reverence for life had made the "biggest impression" on her. "He always loved his fellow man and helped him whenever he could." And another girl, not overwhelmed by the magnitude of the world's problems, said, "Even though I'm a little thing in a great world, I can contribute by just trying." One girl revealed in her written evaluation of the course very specific plans:

> Before entering school this year, I knew very little about the Peace Corps. I knew, but only vaguely, about the sufferings of people in other nations. I knew something about all of this, but I wasn't really interested. After entering school this year, I began to read better articles on this subject, and I realized how much good the Peace Corps was doing, and I finally saw how the people in other countries live. It made me want to do something about it--and about the condition of Negroes, the people in India, and the juvenile delinquent.

As a total group, the boys did not respond as positively to the humanitarian-altruism value as the girls, as the results on this instrument reveal. At the end of the year, the experimental boys' scores were no higher than the control boys'. However, this is not to say that all the boys were uninterested in humanitarian values. Several boys scored exceptionally high on the Humanitarian-Altruism Scale, but in the class discussions, boys most commonly took the "technologist's viewpoint," i.e., that technology was good in and of itself, and girls the more humanely concerned point of view. Some of the boys did, with considerable force, insist that human values, including humanitarian-altruistic ones, were of the greatest importance in the development of man.

An objection to the Humanitarian-Altruism Scale (and perhaps to other instruments used in this study) might be that while a student may appear to be inclined toward humanitarian-altruistic behavior on a paper and pencil test (or speak freely about the importance of humanitarianism in class discussions), his actual behavior may be quite different. To partially handle this objection, the statements which were used in the instrument described specific, not general, behaviors and asked the student whether or not he would take a given action in a given situation. We realize, however, that it is easy to verbalize humanitarianism, but it may be quite difficult to behave in a humanitarian manner. While this is granted to be true, we believe than an important first step to new behavior patterns is to first suggest the thought--and if we succeeded in getting students to talk and think about humanitarianism and its importance to today's society, that at least may represent an important first step in the desired direction. Further, teachers did encourage students to act upon their verbalized humanitarianism, and some students undertook community projects that demonstrated their desire to serve. For example, one class collected books for homebound students.

In general, we might say that the boys' reaction to the feminine aspects of the experimental course, such as the self-actualization of women, the humanitarian-altruistic dimension, and also the aesthetic value--was not entirely surprising. It was expected that the girls would respond positively, while the boys--still in their early adolescent years when they are somewhat self-consciously playing a masculine role--might be expected to be more dubious about ideas and behaviors that our mesomorphically-oriented society (to use Aldous Huxley's term) has called "feminine." During the course of the experiment, the observers noted some of these negative reactions to the feminine aspects of the course.* For example, one boy insisted that the Aesthetic World be called the "Anaesthetic World," and another called it the "Pathetic World." Still another took the entire Aesthetic section out of his book and inserted in it a brown paper envelope in the back of the book. Some of these initial objections to the aesthetic changed, however, when the boys met the "masculine" models who worked in the arts or who obviously held the aesthetic world to be very important. Thus, despite continued resistance of the boys' to what might be called "sissy," classroom discussions and remarks made in private interviews suggest that perhaps if we did not succeed in completely breaking down the sex stereotypes, at least we caused many boys and girls to question their validity.

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*The materials in the present course are being used in a suburban New York City school this year (1964-1965), and according to initial reports, the boys in that school who are a part of the course do not respond to the Aesthetic World with the same initial negativism as the boys in the Lansing experiment did. Perhaps the arts are not as foreign and un-masculine to boys who come from more culturally favored homes near a great city as they are to boys from Middle Western middle class homes in a smaller city.

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VII. RESULTS AND DISCUSSION

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VIII. SUMMARY AND IMPLICATIONS

A. The Concept of Utopia: Implications for Educational Change

As we have surveyed the needs and the potentialities of young people and of the social order, it must be apparent to the reader that our bias is toward considering the most elevated among human needs as being the need for liberation of the higher faculties, which is to say for self-actualization. The potentiality for such liberation and creative expansion suggests that the human adventure can offer a measure of delight and satisfaction that is rarely experienced by human beings today. Further, it is our belief that there is widespread potential talent for such creative thought and for engaging in kinds of development which focus on beauty and rationality and love, but these potentialities do not commonly emerge today--perhaps because there is not pattern of formal education specifically designed to foster such development. This disregard for the quality of life that young people will lead is little short of tragic in view of the needs of youth and quite inexcusable in view of the fact that there is knowledge generally available that could be used to provide guidelines for a more appropriate education.

It has been the purpose of this study to point out certain psychological understandings, as well as insights, emerging from other disciplines, which will contribute to the rethinking of a process of education where the goal is self-actualization. To bring this about we must reconsider what we are doing at present. With this in mind we have included in this chapter some rather explicit suggestions as to what might be done. It is our feeling that this reformulation must deal with such concepts as what man might become (if he is given a setting which will free his creative imagination and which will give direction to his ethical growth), and it must include specific suggestions as to how such programs and settings can be established. In considering the first issue we will present our conceptions in a new frame work--one that we feel is essentially consonant with the ideas expressed in the reported research.

This new framework is concerned with potentiality and is a utopian concept. We cannot conceptualize new human possibilities, as we have done throughout our research, without acknowledging that these very conceptions are utopian. We freely admit this to be the case at the same time that we recognize that many of our readers may find themselves reacting negatively to the very concept of utopia--to the word itself. This distaste may come from several sources. The old versions of utopia were often static and class-oriented and thus quite inappropriate for a dynamic, democratic society. Further, dreaming of any kind, and especially of a future which may be felt to be out of our control, is held by the pragmatist to be unrealistic. And making plans to act upon a new vision of the future (the very heart of the utopian enterprise) engages us in an activity that may be considered almost un-American in that it may involve a degree of foresight that could threaten the impulsive decisions of each individual.

Knowing all of these objections to the utopian frame of reference, we continue to feel it to be appropriate as a way of looking at the study we have just completed, and, beyond that, for sketching in educational plans for the future. We feel that with a clearer concept of direction, educational change will come more surely and in a defined rather than chaotic way. Such utopian plans for educational change must include all that we now conceive to be most fundamental and necessary and ideal. They must include, then, dynamic process, open-endedness, broad principles that provide guidelines, and be based on the assumption that each able student will develop a strong sense of responsibility for himself and others.

If utopia is, as Mumford holds, "the potential, the purposeful, or the ideal,"[1] we would be faint-hearted, indeed, if we did not review our findings in terms of such an ideal. Although utopias, like absolute truth or goodness, are never fully realized, they provide direction for the creative search. Man has always known this, and literature reveals utopias to be as old as recorded thought and as common as dreams. In the simplest sense they are dreams--private and personal and often glorious. However when translated into utopias they become at once both publicly expressed and a communal enterprise. A review of the published utopias indicates that every social order and each historical era has had its distinctive types and that they reflect the culture and intellectual milieu of the time.

The old dreams, ideals and utopias are not appropriate for the modern world or for contemporary youth. Mumford has commented on the flaws of prior utopias. As he reviews Greek utopian thought, he notes the limitations of these utopian models which were "monotonously repeated" by later utopian writers. He reports that such features as ". . . isolation, stratification, fixation, regimentation, standardization, militarization . . ." were often the attributes of the Greek utopian city and that these characteristics remained "in open or disguised form, even in the supposedly democratic utopias of the nineteenth century . . ."[2] In contrast to these static and limiting utopias, Mumford conceived of the possibility of a kind of utopian design, "foreplans of action" (Lloyd Morgan),[3] in which the utopian ideal could be used to free and to give purpose to the human enterprise. This open and flexible utopia would serve "as a dynamic attribute of living organisms" and "as a necessary constituent of rational human development."[4]

Others have offered new and somewhat more specific models for "utopias for our times." A small group of philosopher-psychologists have suggested the need for open and more facilitating environments. Among these Maslow seems most willing to discuss his ideas as utopian.* His model is dynamic and humane and would seem to serve admirably as a guide for planning for new ways of releasing human potential and establishing ideal learning settings. In presenting his concepts of synergy, drawn from the anthropological studies of Ruth Benedict, he suggests that it is possible to have truly spontaneous and individualistic behavior which will express itself in altruistic action.[5] Similarly, Gardner (who seemingly has not identified himself as a utopian) speaks of excellence expressing itself in a context of concern for all and sketches in the elements of a setting as well as the process of education that would allow this to happen.[6] Maslow, particularly, has been concerned with new ways of thinking which embrace the holistic and interactive, and suggests the dangers of the shaping effects of Aristotelian categories. He sees this psychological utopia as available for all, particularly when basic needs (physical and psychological) are met. It is his view that many could become self-actualizing instead of the limited number who actually do. Such a eupsychia would, ideally, foster the fulfillment of "idiosyncratic potentials, of expression of the self, and of the tendency of the person to grow in his own style and at his own pace."[7]

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*At times Dr. Maslow refers to self-actualization as a state called "eupsychia," and recently he has discussed it as an ideal (or synergic) relationship between an individual and his society.

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However, Maslow has come more and more to believe that there are directions of a somewhat greater importance than simply the enhancement of personal preference, and he feels that these directions relate to a general social change or spiritualization of mankind (these views are similar to those expressed by de Chardin[8] and [Julian] Huxley). As we noted earlier (Aldous) Huxley has commented on the fact that the developing individual will not be able to choose wisely if he is not presented with an array of possibilities from which to choose.[10] It seems self-evident that we cannot develop a foretaste for that which we have not dreamed about or experienced in any way.

Maslow suggests that the gifted generalist with humanitarian-altruistic leanings is the prototype toward which we should move and thus should be presented as a model or a type-speciman to young people. Arnold agrees with this view, i.e., that the gifted generalist is this type of human being, and makes the point that this generalist is more fully developed than the specialist[11]--a stage through which most generalists have probably passed. He goes on to say that our educational program should try to foster this kind of development by allowing for freedom of explanation and a wide range of creative experiences* Gardner similarly pointed to the rarity of generalists--to the all-around excellence that such a term denotes and to the great social need for such individuals.[13] In considering the most appropriate education for the self-actualizing generalist, Maslow, Arnold and Gardner all have stressed the need for developing the affective or emotional potential as well as the intellectual potential. It is apparent that many of the attributes of self-actualization or excellence will only be realized with the freeing of both intelligence and emotions. The importance of love, dreams, fantasy, and aesthetic and intuitive experiencing cannot be disregarded or denied if our aim is to help students become self-actualized.

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*Arnold contends that education "is primarily concerned with the skills and attributes facilitating analysis" and tends to concentrate on the overly simple and supposedly easy way to teach which requires only that the teacher ask specified questions and that the students reply to each question with the one right answer.

In this utopian framework, sketched in by those psychologists concerned with creative release of the individual's potential, we see new patterns of thought emerging that lend themselves admirably to the open-endedness that, for instance, the nineteenth century French utopians held as desirable but for which they had not found suitable models.[14] Democracy itself, and the kind of open discourse and multiple alternatives that the system endorses, has been the first widely accepted secular utopia.[15] The ecological thinking of today's natural scientists similarly stresses a dynamic equilibrium.[16] Myrdal, a Swedish economist, has formulated a model to explain the growth of cities. If we over-simplify his presentation, we can say that without economic planning the poor get poorer and the rich get richer and that this typically occurs unless an intervention is planned. Such an intervention can change the whole inter-action system.[17] More recently an anthropologist, Maruyama, has presented this concept as the Second Cybernetics--a dynamic situation in which the organism and the environment are mutually enhancing.[18] It is Maruyama's suggestion that only modest changes, i.e., "deviations," are needed to set in motion "a deviation amplifying mutual causal interaction system." With an appropriate stimulus (challenge) and a free environment (a system that has elements of flexibility and openness) a kind of self-sustaining growth begins. Elements of responsiveness in both the individual and the environment are necessary for such continual enhancement of growth.

The readiness of our society--in terms of the availability of certain ways of thinking, a continuing desire of the individual for actualization, and a new freedom (release from basic needs) for the many--suggests that these new utopias are not impossible. However, these harbingers of a psychological utopia often lack effectiveness due to other societal forces. A disinterest in or active hostility toward eupsychian thought is expressed by at least two groups--the intellectuals and the determinist-mechanists. The intellectuals feel, in many ways, that Common Man has betrayed their romantic trust in his ability to become truly educated and cultivated. Brinton comments that few are so despairing of "Progress, of better things, moral as well as material, of orthodox democracy as are our intellectuals, and in particular among the intellectuals, our best-known writers and artists."[19] In contrast to the intellectuals' attitude of disillusionment, a large segment of determinists (self-styled realists) seem to have few conflicts since they generally (although often tacitly) express a lack of faith in man. They simply dismiss the democratic process and self-determination and proceed with plans to condition and manipulate their less perspicacious fellowmen. Two intellectuals, (Aldous) Huxley and (George) Orwell, have written negative utopias which dramatize the consequences of such social and technological controls, and display a lack of faith in the social engineers that is at least equal to the distrust characteristically displayed by these engineers of the decision-making talents of ordinary human beings. These determinists are primarily nourished on the objective roots of science and technology rather than on the more subjective flowerings which the intellectuals typically sample. Brain, the noted neurologist, comments that these ideas of molding personality and of discounting individual differences characteristically "lead to a reductionist view of human nature."[20] These reductionist views are quite different from the utopian concept of leading a life of creative expansion.

Much of this anti-utopian or dystopian thinking is communicated to today's youth. Particularly is this the case with the most thoughtful young people who are often enthralled by modern technology and science fiction and who, in addition, read current fiction. Some have become enthusiasts of what has been called the "gadget" utopia of Walden II, and others sigh fitfully with Holden Caulfield and verbally retreat into despair and alienation. Yet the "third force" view in psychology may have a more powerful valence than we realize. It is difficult to succumb to abject despair (by agreeing with the intellectuals) when you are young and healthy. And it is certainly disquieting to deny (by agreeing with the mechanists) that you are truly an individual, self-directing and different from every other human organism.* Recently social observers have indicated that youth has become greatly interested in causes (free speech) and in action (sitting in). As Brinton observes:

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*At the time the investigator discussed four types of able adolescents in an article ("The Four Faces of Able Adolescents"), she received at least one hundred letters. Almost all adults were enthusiastic about the article and felt they now understood the adolescent better. In contrast, the adolescents who wrote were quite upset about being cast into types, contended that they were all individuals and complained about the presumptuousness of psychologists who make "guinea pigs out of human beings."[21]

> Many of the new generation have thrown themselves into movements like the Peace Corps, civil rights, disarmament, international, supranational, government, and less heroic but still melioristic tasks like urban renewal . . . . They do this often to the accompaniment of words of existentialist despair and anger, but their deeds belie their words. Their anger is not directed at poor ordinary human beings. At any rate, they will be in full command in the year 1984, when some of them may hopefully note that Big Brother, too, is dead.[22]

There may be, as Brinton speculates, a revival of utopian thought with the added ingredients of the "faith, hope and charity" needed for the survival (or perhaps realization) of such ultimates as "liberty, equality, fraternity."[23] Certainly, as Manuel says, "To attack utopias is about as meaningful as to denounce dreaming. No great civilization ever lived without them."[24] And dreams have always provided sustenance for youth.

There is general agreement among social philosophers that every man has rights and needs that must be satisfied and that beyond this each should find ways of being and becoming, ways to release his imaginative energies and his mental powers. It is quite apparent that we believe that utopian kinds of thinking can be applied equally as well to educational change as to social organization.* Both are needed to help bring about congruence among several forces--the self-actualizing needs of each individual, the forces of change which characterize the era, and the ever-present need for a relatively stable and humane social order.

To accomplish such ends education must become more open and non-restrictive, and each individual must learn to become not only his own agent but also to be his brother's keeper.* This need for individual expression has always been more apparent in the able, although an attitude of social concern has often been lacking. However, it is now anticipated by many that the future will find "common man living for his own happiness, not for the glorification of his rulers; and . . . uncommon man [finding] his fulfillment in enriching the life of the common man."[25]

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*Indeed, every utopian writer has been very much concerned with education.

We have seen that eupsychia and the modern utopias (including those of an educational nature) have a more varied and changing repertoire, embrace a larger world, and involve a greater concern for one's fellowman than did the older utopian formulations. Most social philosophers-at-large recognize that no proper utopia for the present or the future could be created for one ethnic group or one social class as was the case in earlier utopias. There is increasing acceptance of all human beings as world citizens, and thus as bona fide denizens of the new utopias. Scientific and literary journals, especially those written for the liberally educated layman, are cognizant of these developments. We also have evidence that today's youth are idealistic, frankly want a better world and are well aware of the complex and ever-changing cosmos in which they live. Students now find it easy to think in "One World" or international terms and they not only want to know these multiple worlds but they also want to know themselves.

To provide for planned and intelligent change, a need recognized by both social philosophers and able youth, a truly modern education must be conceived. This must present basic values as well as alternative ways of thought and culture and multiple worlds if our young people are to think and dream in the larger terms that are demanded by our era, and if they are to discover themselves in the essential ways that are necessary for self-actualization.

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*This is not a license to put the brother in a Skinner box, although he may voluntarily choose to inhabit a "split-level trap."

We have tried to make it clear that our goal is to produce students with open and flexible thought patterns. The students must be encouraged to interact with and respond to and challenge their environment if they are to be explorers and discoverers and ultimately self-actualizing and responsible adults. Such development will occur most effectively when the environment is both responsive and evocative. Our problem in education--which we have given (by definition) a utopian caste and which has, as well, an Olympian size--is to learn effective ways to communicate these common goals and at the same time to build into the curriculum and teaching methodology ways for these human universals to be expressed as directly as possible.

The intellectually gifted adolescent,* as we have indicated, is an alert, thoughtful and concerned human being. Many of these young people are thinking constructively about their present lives as these merge into the future and some have come to feel that they are responsible for and perhaps can give direction to their own futures. A few are beginning to understand and to give credence to the self-fulfilling prophecy. In these ways the utopian dream of "being and becoming" is a vehicle for self-education.

Constructive dreaming, i.e., making "foreplans of action," is an essential activity as the young become mature. However, thinking clearly and coherently about the future, about goals and about adulthood was never an easy task. It is more difficult now when many of the older guidelines of tradition and religion are found generally unusable.[26] There is a need for a new kind of guidance, for helping young people to become self-directing and responsible. The most far-sighted of psychologists and social theroists endorse such aims, and some have discussed the need for each individual to become his own cosmologist.[27] Constructing utopias is no longer the exclusive province of the philosopher. Yet the adolescent who wants to think in these terms finds the task a difficult one and the encouragement given for such an undertaking limited. Too often the young person in our society finds virtually no guidance and little sanction for exercising any choice of the values he might wish to accept for himself as he moves toward establishing his own identity. Few acceptable suggestions and guidelines come from traditions and authorities. Hence the individual with the courage to ask questions such as "Who am I?" must find his own direction without sufficient preparation or guidance. We have noted earlier, that Gardner feels that the school offers no education which is concerned with the fulfillment of the individual, his values and his intelligence. It was because of these unmet needs, so basic to the development of what (Aldous) Huxley called "full humanity," that we carried out the study which has just been reported. Our belief is that in being unconcerned for these humanistic values (from which human beings derive their uniqueness) and in our disregard for the most basic needs of youth, society and the schools are acting irresponsibly. Education cannot be truly effective until the young person's sense of individuality and his needs to understand himself in the larger context of the world are recognized. There are limits to the amount of incoherence that youth can tolerate.*

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*Although this report focuses on the able and the intellectually gifted student, it must be kept in mind that many of these statements apply to most adolescents.

Developing values and goals involves choices and decisions, but these cannot be made without a knowledge of possibilities and without a developed talent for making intelligent choices. We felt that steps could be taken which would enhance and give direction to adolescent growth. We believed this could be done by supplying both basic unities and an array of alternatives--teaching methods of choice and decision--and in these ways helping each student begin the slow process of self-discovery and of exploration of the world. The need, as Fromm and others have seen it, is for a grasp of reality outside and inside ourselves.

In the decision to make such educational changes, a vital consideration is that since man has reached a position of great power, he can eliminate, manipulate, and create aspects of his environment. Having achieved such ascendancy there is no alternative but that he assume a more responsible attitude toward himself and toward the universe he inhabits. Dubos sees these ". . . powers of action [as] so great that the classical discussions of the good life now take on very practical meanings."[28] Our thesis was that if a student could be helped to see himself as a self-directing and responsible individual and could learn to apply intelligence to his problems before he is overcome by them, he has a greater chance to be psychologically healthy and intellectually mature, and eventually to be socially concerned and contributive. Our research has been an attempt to predict whether or not the consideration of these vitally important problems and what Dubos calls the "existential realization" of the individual might not be fostered by a program designed to accomplish these ends.

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*The changing environment and the disruption of life patterns caused by technology seem to contribute to rather than to ameliorate these problems. Dubos comments, "Outwardly man makes adjustments to the new conditions of life; inwardly, however, he has so far failed to make true adaptions to them, and his discrepancy creates physiological and psychological conflicts which threaten to become increasingly traumatic . . . modern knowledge, especially scientific knowledge, relates less and less to human experience." (René Dubos, "Science and Man's Nature," Daedalus, Vol. 94, Winter, 1965, p. 232).

B. Program Development: Being and Becoming, A Cosmic Approach to Counseling and Curriculum.

To answer this question we have used, on an experimental basis, guidelines (in the form of a flexible textbook and style-of-life films) for the use of the student who is developing his own utopia.* These suggested directions and alternative interpretations were given to each student to contemplate, react to and use in his own quest for self. The aim was not to prescribe directions or to determine ultimate life values for students, but rather to help them find common agreement and beyond these to see new possibilities (including the ideal and prototypic), to examine their own life styles as well as the important issues of today and tomorrow, and to find ways for reaching some valid decisions on their own.

We suggested in the course directives, including the film commentaries--"talks with the students"--and in a "Letter to the Student," that they take responsibility for their own education, and come to see learning as a continuous and lifetime process. Opportunities were provided for the young people to engage in a different kind of education, one in which they, as individuals, played a central role. Free discussions conducted with an emphasis on intellectual responsibility were the core of the program. The textbook which the students constructed for themselves from a common pattern--Four Worlds--presented some of the great themes of the world's discourse as well as the thoughts and commitments of world leaders. The films featured men and women with high standards of excellence and great social concern whose involvement in self-assigned tasks had given them a large measure of fulfillment. Not only could these models demonstrate to the students a satisfactory "working philosophy of life" but they also could communicate to the students, quite directly, a variety of patterns of experiencing.

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*These materials, and the assignment which asked students to build their own cosmologies, were central to a new course, formally designated as a social-studies-careers program. This program was described in detail in Chapter V.

From the outset we made it clear to students what the ideals and values held to be important in text and films were and that they should weigh them and only accept them if they thought they were valid. They were repeatedly told that education went beyond the classroom to embrace learning in many realms, the aesthetic and intuitive included, and that education was a lifelong process for which the learner was both immediately and ultimately responsible. The film models, each in a distinctive way, showed how they learned continually and from all manner of stimuli and how they responded creatively and selectively to this stimulation. Finally, each student was encouraged to go beyond reading about and listening to theory and premise and to do more than learn by example. Each was invited to involve himself in experiences which asked him to seek out, to choose, to integrate and to draw conclusions. Discussions were not verbal exercises in repeating pre-formulated answers to the questions teachers or textbook authors had devised. Instead they demanded that students react to, agree or disagree with, and go beyond the ideas and opinions introduced in the text or voiced by the film models and the teachers. The open-ended textbook presented themes and ideas which teased out but did not demand response. It allowed, in addition, opportunity for the students to add articles which they had clipped, and pages of criticism and other original work, such as poetry and cartoons, they had produced.

Throughout the five-month, hour-a-day course, these materials were reviewed and challenged by talented young people. The platforms of today became springboards into the future, the personal knowledge of youth was tested against expert opinion, and the self-revelation of adults prompted disclosures by adolescents. Discussion allowed for what Dewey called "internalization of principles."* Diversity of themes, of life patterns and of thinking styles was provided in an endless variety of materials. The effort was made on all fronts simultaneously.** Both through the films and the text an effort was made to create variety as well as pattern and--always--to strive for ever-richer and more diverse perceptions on the part of the student.

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*Descriptions of the nature and quality of the classroom contributions of thirty of the most creative of those students who participated in the interviews have been completed. In addition, tables were made indicating each statement made by each student, how the statement was classified, and on what page and in which script (of the 40 discussion transcripts) it occurred. These commentaries on class participation will be used to add a non-reactive dimension to the test and interview data. Analysis of the discussions was based upon evidence of the following elements:

> Openness to the world, Striving for Self-understanding and Creativity. Under each of these elements, a number of sub-categories were also considered.

This data will be added to that which we have derived from detailed analysis of the version of the text that each student produced and to two-hour depth interviews conducted with each in the summers of 1963 and 1964. These will appear as a part of Report III. (Elizabeth Monroe Drews, THE CREATIVE INTELLECTUAL STYLE IN GIFTED ADOLESCENTS: Process and Product: A Reassessment of Students and Program, Report III in a series of three; Final Report for the Media Branch, Title VII, National Defense Education Act, Contract No. 7-32-0410-222, U.S. Office of Education, "The Effectiveness of Audio-Visuals in Changing Aspirations of Intellectually Superior Students," Phase II [East Lansing, Michigan: College of Education, Michigan State University, 1965]).

**Huxley has suggested that in education as in medicine we always must realize there is no single cure; thus, in his island utopia the approach was to "attack on all fronts at once." (Aldous Huxley, Island [New York: Harper and Brothers,1962], p. 76).

In summary it can be stated that this was a program which stressed certain universal considerations, particularly a social conscience of a kind that extended to all aspects of the human and natural worlds. Beyond this the effort was to develop the intellect and to free the imagination in such ways that each student would develop a distinctive identity. The aims were more generally expressed under two headings: The creative intellectual style and the feminine dimension (an aspect of this was investigated by an informal instrument, the Humanitarian-Altruism Scale).

C. The Experimental Study: Method and Results.

The creative intellectual style has been the focus of our studies for the past six years and was tested in this research by the following standardized instruments: Omnibus Personality Inventory, Allport-Vernon-Lindzey Study of Values, ACE Critical Thinking Test, Form G and the Rokeach Dogmatism Scale and Rokeach Rigidity Scale. In our previous work we developed several informal instruments to supplement these formal measures. The following were used: Student Interest Survey Scales (incorporated into the Student Interest Survey V), the Reasons for Occupational Choice, the Student Profile Check and the Ability Self-Concept rating.

The feminine dimension embraced a special aspect of the creative intellectual style in that two instruments, Acceptance of Women Scale and Self-Actualization in Women, were concerned with self-realization in women. In terms of a more universal base we were also interested in a third instrument, the Humanitarian-Altruism Scale, which was developed while the course was under way and served to explore areas that had become a strong focus in the program.

These values, i.e., social concern and the belief that girls should develop intellectually and creatively, seemed more important to us as the program developed. We found, as we observed the class discussions and noted reactions to the films, that the greatest prejudice was expressed against girls and women who behaved in self-actualizing ways. This prejudice mainly was exhibited by boys who also expressed strong feelings against other values stereotypically associated with women. Among these was the valuing of humane ways of thinking and behaving and an appreciation of the aesthetic realm and the natural world. Boys* typically valued technological change--making and doing things--rather than taking a more contemplative and reverent view of life.

As a result of the program and the special emphasis given to the creative intellectual style and the feminine dimension, it was hypothesized that the experimental group would be higher than the control at post-testing in the following areas: originality, complexity, aestheticism, theoretical orientation and thinking introversion (philosophical contemplation). It was also hypothesized that the experimentals would (at the end of the experiment) test higher in critical thinking skills and express fewer dogmatic and rigid attitudes. In addition, several hypotheses were drawn to indicate that we expected experimentals to show (at post-testing) more interest in creative intellectual present and future life styles; and others were drawn to show that in the secondary focus of this study, the feminine dimension, we expected more valuing of self-actualization in women and of humanitarian-altruistic behaviors.

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*A small group of boys who tested high on the Acceptance of Women Scale tested significantly higher on creativity scales than boys who tested low on this scale. Although the results of this sub-study are not reported here we plan to inquire further into the attitudes of boys and men who show high creative potential, are unusually open-minded and value women as human beings in the most elevated definition of the term.

Altogether we administered eleven post-tests and reported results for the control and experimental groups by totals, girls and boys. For the totals we discovered that our hypotheses were borne out, that is, the experimental students scored significantly higher than the controls, on the Originality, Thinking Introversion and Theoretical Orientation scales of the Omnibus Personality Inventory and higher (but not significantly so) on the Estheticism and Complexity scales. We found that the experimental group scored higher on the Theoretical scale of the Allport-Vernon-Lindzey Study of Values, but not on the Aesthetic scale of the same test. They also scored significantly higher on the ACE Critical Thinking Test, Form G, the Creative Intellectual Scale Student Interest Survey V, and checked more creative intellectual reasons for choice of a future occupation on the Reasons for Occupational Choice. No totals were computed for the Acceptance of Women Scale, Self-Actualization in Women instrument or the Humanitarian-Altruism Scale for reasons already stated in Chapter VII.

The experimental girls followed a pattern similar to the pattern followed by the total group. In other words, they scored significantly higher than the control group on the Estheticism, Thinking Introversion and Theoretical Orientation scales of the Omnibus Personality Inventory, higher on the Aesthetic scale of the A-V-L Study of Values, showed more critical thinking aptitude on the ACE Critical Thinking Test, Form G, scored higher on the Creative Intellectual Scale, Student Interest Survey V and checked more creative intellectual reasons for choice of a future occupation on the Reasons for Occupational Choice. The experimental girls also scored significantly higher on the Acceptance of Women Scale and on both the Ideal and Real choices of the Self-Actualization in Women instrument than the control girls, and they scored significantly higher on the Humanitarian-Altruism Scale as well.

Finally, the experimental boys tested significantly higher than controls on post-test results on the Theoretical Orientation scale of the A-V-L Study of Values, the ACE Critical Thinking Test, Form G, the Creative Intellectual Scale Student Interest Survey V, the Student Profile Check and the Real choice on the Self-Actualization in Women instrument.

We feel that those who devise a program must have specific aims in mind, must clearly state these aims (their theory of education), and then make a concerted effort to translate theory into meaningful activities. It is only by implementing enunciations that one may find that principles can have real consequences. However, none of this is easy and the efforts that we have reviewed here must always be considered tentative and exploratory.

It is our feeling that for those readers who can accept the development of self-actualization in the student as an important direction of change in education, the research results which have been presented hold important implications. Primary among these implications is that such change can come about as a result of special efforts. In developing this new program we felt that one of the most important factors in its success was the fact, continually kept in mind, that we wanted to produce attitude change in the direction of moving toward a greater motivation to learn, more openness to psychological growth and a general social concern. Our assumption was that such change was most apt to occur if several conditions were met, that is, if:

1. Materials and methods were essentially harmonious with each other and the themes were limited in number. All parts of the program--the outside readings done by teachers and students, the Four Worlds Textbook, the Being and Becoming Film Series--were interrelated. Thus, we attempted to provide a total front effort rather than a piecemeal approach.
2. The direction of desired change or the program aims were clearly delineated. The statements of the commentator in the films, the content of text materials and the voice-over film commentary of the models all clearly indicated the objectives.
3. The environment and materials were of a friendly and non-threatening nature. Students could disagree (for good reason) with their teachers, take pages out of their texts and react negatively to a given film model. However since neither text nor films contained much material of a hostile nature, classroom atmosphere tended to be relaxed and friendly but never without controversy.
4. The direction of change was congruent with the students' predilections both in cognitive and affective areas. Students who are intellectually gifted tend to value their minds and thus find it easy to identify with exceptionally able adults and to accept the "life of the mind" as important. Students also found such basic values as love, compassion, responsibility and a sense of integrity as consistent with their understandings of the Judeo-Christian Ethic and the American Dream. Finally, the warm and pleasant behavior of the models was not uncongenial to adolescents.

D. Implications for Counseling and Curriculum Change

1. Demonstration and/or Dissemination of Programs and Materials

The program with which this study is concerned has been developed to a point where it might be tried on a demonstration and/or dissemination basis in other settings. It would seem to be particularly valuable to try the text and films and discussion techniques with teachers who were not working directly with the investigator. Such an approach would make it possible to determine how much preparatory work with teachers is necessary before they begin teaching the course and how much direct aid during the program is needed in order that the materials be effective. Our suggestion is that teachers would need an institute or workshop for previewing the films and becoming familiar with major themes and issues in the text. Beyond this point, the course materials (text and films) supplemented by a guide book,* and the occasional help of a consultant, would perhaps be sufficient for a highly motivated, well-informed teacher. We suggest that the teacher, especially in terms of attitudes, general knowledge and teaching techniques, will be a vital factor in such demonstration efforts and that considerable care should be taken in the selection of this key individual. However, there are undoubtedly many teaching approaches that will be effective.

In an adequate field test of the program, there should not only be try-outs by a variety of teachers but the possibilities of using it with a range of student populations also should be explored. The response of young people from various socio-economic levels and ethnic backgrounds cannot be predicted but should be observed as classes proceed. Records of the reaction of these diverse groups of students would provide suggestions for further program modification. For example, it would be desirable to discover if certain of the film models had a kind of universal appeal which others did not have.

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*This guide book or teacher's manual has not been prepared, although many materials and suggestions for teaching approaches are available which could well be included.

Similarly, the program should be tried out with students of different ages and of varying abilities. (The range easily might be extended from highly gifted seventh graders to average twelfth graders or college freshmen.) However, it must be remembered if the present program is used, that students who do not read well enough to comprehend the language in the textbook or the vocabulary and allusions of the models will probably not respond well.

A third form of varying the usage pattern of the program and still keeping it essentially intact would be to explore the possibilities of using it as a substitute for courses other than the career-social studies semester. It could be modified to fit into curriculum sequences in English, humanities or philosophy with only the modification in outside readings and discussion-focus that each teacher who uses the program would be expected to make. Other ways that the program might become part of the school curriculum include using it as a non-credit or after-school seminar, centered on life philosophy or concerned with the conflicts and relationships between culture and science. It might become the basis for group counseling sessions concerned with the self-actualization or the achievement of identity of the students involved. Another possibility is using the materials in a developmental reading program (perhaps conducted by a librarian) where the special focus is the human condition.

2. Modifications of Program and Reconsideration of Role of Teacher

Perhaps the most important purpose this program can serve is as a model for other and more extensive curriculum innovations, particularly in the general area of the humanities and social studies. The very process of developing new curricula and new instructional devices, such as films, is a particularly valuable one due to the fact that engagement in the process makes it necessary for us to think through many things that were vague or inchoate before. As we strive to construct meaningful sequences, we must ask ourselves if these materials and ideas help us meet our aims. If we do not have explicit aims we will suddenly become aware that our work has no direction and there is no basis for including or excluding ideas or approaches. As we have considered this matter we have become ever more aware of the number of possibilities that could be considered, including adaptations of the course materials and approaches. Some of these might be combined with other materials that a teacher has customarily used. Special methods, such as ways the film series were used (introductions, typescripts, discussions), might be adapted to other film courses, or only the general idea for planning a program for attitude change, i.e., our total front effort, might be incorporated into a new program. If the great number of alternatives and the rapidity of change in our society make it ever more important that we do not drift aimlessly, then a cause which stresses firm humanistic values becomes imperative.

In addition to the need for trying the program with a variety of teachers and students and in a number of subject sequences and out-of-school situations, it would be desirable to provide more alternative selections within the course itself. As we were developing the text and the films, and later in our use of the materials during the experimental semester, we were continually aware of other approaches that might be taken. We felt that it might be desirable to have a larger number of style-of-life films to enable each teacher to make choices of models in line with his own tastes or to make it possible for members of a diverse group of young people to find the examples most compatible with their own backgrounds.*

It would seem highly desirable to develop a listing of a number of other appropriate films and materials, especially those that are readily available for use in the schools. This would provide a greatly enlarged repertoire for the teacher who is adapting the program to fit into a new framework or simply making changes more compatible with his teaching skills and interests. There are biographical films and films on the creative person available through National Educational Television that might be used. In this way, additional role models in many intellectual and artistic realms would be available. Films or kinescopes which focus on current issues might also be used and some are available. "Twentieth-Century" has indicated that many of their programs could be obtained for school use. Not only are there many excellent films, but in addition there are disc and tape recordings featuring the biographical comments of outstanding people and giving their views on their careers or the state of the world. It is possible to hear poets recite their poetry and great actors give excerpts from their dramatic triumphs. Visual enrichment, including trips through famous art galleries and great museums, can be provided by film strips and slides. Finally, the bibliographic materials which we have compiled could be extended to include many other kinds of reading beyond biography. We have already worked out some listings of fiction and nonfiction held to be "current and good" by both students and librarians, but these need to be continually evaluated and expanded.

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*It is suggested, if the program and film series is to be widely used, that additional films be prepared to make it possible for a variety of ethnic groups to be represented among the models. However this variety was not held to be necessary for the Lansing area since the vast majority of gifted students here are white Protestant, assimilated Americans.

For those who want to use the Four Worlds Textbook, we feel that it would be highly desirable for an agency or resource center to prepare, on a monthly basis, new supplementary pages to keep the text current. Outstanding articles in new publications could be reviewed or digested and from these the new loose-leaf pages might be prepared. Thus both teachers and students could be given an overview of the current state of the world, including cultural and intellectual aspects. Since teachers are too busy to scan dozens of magazines and other publications each month, this would easily increase the range of their functional reading and give them a ready way of knowing about articles that they would find both appealing and relevant.

As these innovations with materials and approaches are made it is, of course, very important that the characteristics of the population who is to use the new programs be kept firmly in mind. For example, this program could easily be adapted for culturally deprived children who are gifted (or at least show intellectual potential) but have not been exposed to intellectual and aesthetic values and have not met artists, scientists and philosophers. In order to make the material appealing for such a group it would probably be necessary to find out something about their backgrounds and something of the flavor of the community. From this base, transition statements and materials that would form bonds between the child's world and the Four Worlds could easily be incorporated into the flexible textbook, the bibliographic references or the audio-visual materials. Although this program is not suitable for slow learners,* open-ended materials and films featuring role-models easily could be prepared for less verbal children.

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*The program was designed to show a complex and multi-faceted world and to introduce able students to many abstractions, including a range of unifying concepts and scientific theories. Such materials demand of the reader, a grasp of time-perspective as well as an orientation to the far limits and the particularities of the realms of knowledge which wouldbe beyond the grasp of the slower student. In addition to finding the content too difficult,below average readers (age 14-16), could not handle the vocabulary in the college level reading materials used throughout the program.

In an earlier experiment in which we studied slow, average and superior ninth graders, we found that those who had difficulty reading often flourished in oral discussions.[29] This is especially true when the groups are kept small, congenial and not too discrepant in verbal level. For this slower group, audio-visual materials, the non-book (pictures, cartoons) and other non-verbal approaches should be used. Reading materials, which may need to be specially prepared, should be appropriate in terms of level and interest. In order to break down the prejudice and fears that such children often hold with regard to textbooks, it might be desirable to develop reading materials that are quite unlike textbooks in format. The Four Worlds Textbook met this qualification of having an unusual and almost casual format, and--despite the fact that reading materials were at a college level--the book was not formidable in appearance.

A projected innovation for the program which we have seriously considered using and which perhaps has possibilities of offering the best education for able youth, is one in which the course would be re-designed and become the basis for a long-term program which would combine out-of-school seminars and independent study. Such a venture would bring able young people together for part of every school day in a special learning center. Here they would participate in seminars and engage in independent study guided by able graduate students who represent various academic specialities and who are skilled in counseling and teaching approaches as well. These teacher-counselors would not only serve as guides or intellectual mentors for the students in the learning setting, but also would interpret the students' activities to the classroom teachers in the home schools. Prior arrangements would need to be made with the cooperating schools to exempt students from certain required courses in order to provide free time for the new program. It is suggested that this be done by using qualifying examinations and thus establishing competency in a subject area. Marks should be given, if the school requires them, on the basis of examinations, and thus program work would be freed from the "onus of grading." In order to allow students enough time for experiencing, studying, creating and discussing, at least two hours a day should be freed for the special program.

If an afternoon schedule were arranged, it would be possible for students to work after school hours in the learning setting if they so chose. The setting should be in or near a library, and work would proceed along two lines: each student would participate in the philosophical seminars (which would center on the Being and Becoming Film Series and the Four Worlds Textbook) and other seminars that would emerge as interests became focused, and also each would take part in an independent study program. Thus, unlike most independent study programs for the gifted, in which the student works somewhat alone and has little opportunity to relate his findings to the work of students in other areas and disciplines, in a learning center the student would continually be relating his work to and assessing it in terms of the wider world of knowledge. The center then, would combine the benefits derived from independent study with the ecological purposes inherent in the philosophy developed here.

Over the past ten years in the Lansing research with gifted adolescents, we have developed seminar approaches, taught research methods, and worked toward the development of critical thinking skills--all within the limits of a fifty-minute hour and on a one-semester basis.

Although in the present study, our most recent experiment, we secured changes in the desired direction--toward greater motivation to learn and increased openness to psychological growth--we do not feel that we have done much more than define the problem and suggest a direction of approach. We strongly believe that programs which feature discussion and independent study and which are confined within the time and space limits defined by secondary schools as class periods are not as desirable as programs with flexible settings and time schedules. In addition, such a program needs an excellent library and other resources readily available. Such an array of resources and a degree of flexibility may not be possible in many schools.

Thus, it is suggested that an out-of-school learning setting be developed, since adequate provisions for help in research methods, discussion techniques and other scholarly approaches probably cannot be provided in the more conventional framework. Students not only need a setting which offers freedom (from bells) and challenge (the stimulation of books and gifted companions), but they also need a long-term program which has a unity of emphasis from year to year. We refer particularly to emphasis on scholarly effort, critical thinking, sentient awareness and social concern over a long period of time. Perhaps one of the most important aspects of the program would be this long-term aspect. Certainly there is reason to believe that an intensive total front approach over a long period of time will be most effective in producing attitude change. Beyond this, it has been our observation that students who are encouraged to speak freely, think for themselves, and who learn to work independently in special seminars may not want to continue to behave in these ways when they move out of the program, for they find that such responses are considered inappropriate in the conventional school situation. Too often able students in advanced programs learn critical oral discourse skills and develop talent for questioning during one year or one semester and then are returned to textbook recitations the next. And almost always, if they return to a class that uses grade level text materials, they spend their time relearning what they already know and working at a lower-order cognitive level (learning facts) when they are able and anxious to deal with abstractions and concepts of a much higher order. Thus, if we are to preserve the high-level motivation to learn and the openness to psychological growth that the atmosphere and materials of a well-designed seminar or independent study setting produces, there is a need for continuing work with students of an articulated nature.

It has been suggested in the above discussion that the intellectual counselors or mentors would play an important role in this program and would have many responsibilities. In terms of the independent study program, they would help the students to use library stacks and the resources of a nearby college or university efficiently. More specifically they would help students choose materials wisely, read critically, and learn to collect notes for, write and assemble reports. They also (to the extent that these can be taught) would become skilled in group leadership techniques and acquire the talent needed for effective conduct of seminar discussions. The effort here would be for counselors to learn to provide the conditions of trust and acceptance that would best foster student expression.

The counselors would learn ways to understand these students in depth and thus help them to resolve identity problems and other concerns. Undoubtedly many behaviors that might be considered suitable for a gifted child in a free learning setting would be thought inappropriate in a conventional secondary school setting. The counselor will, in such cases, find it necessary to interpret to secondary school teachers the behaviors and attitudes of these able students. Such careful interpretations could easily help everyone involved--the counselor who is making them, the classroom teacher and the student.

As we have suggested, there will be many ways that young people who are creative and individualistic will find such counselors helpful. The students will also profit from meeting many other intellectually excited and morally concerned people in the center who will help the students, by their very existence, to realize that awareness of self and concern for the world and its needs are attitudes others also hold. Not only would there be tremendous advantages to having close interaction with talented adults (the counselors), but the students would also gain much through the contacts they would make with other highly able students in the learning setting. Beyond this, opportunities would be provided for all students to meet able college students other than their counselors, and also to have contact with outstanding artists, scientists and scholars at the University and through special arrangements (e.g., the lecture-concert series program) in the outside world.

It would be the purpose of this program, as we have indicated, to provide this opportunity for seminars and a continual involvement with scholarly search and research for each of these students over a period of years. Such an experiment would provide us with much knowledge about the kind of help superior students need and would assist the teacher-counselors in developing new talents of their own in a field that is as yet unnamed but has aspects of tutoring or intellectual counseling. We feel that students and the teacher-counselors who intern in the suggested program would benefit greatly.

In our presentation of this program we have suggested the need for a new kind of teacher, the intellectual counselor. However, the matter of possible program changes would not be adequately explored if the role of the classroom teacher is not reconsidered. A number of new roles are possible, and many of these will develop within the more conventional school setting. All of this is to say that there is little doubt that the role of the teacher will have to change fundamentally if more young people are to be introduced effectively to the new and/or the great ideas in the humanities and sciences, and if, in addition, students are to learn certain fundamentals of scholarly behavior. Teachers may begin to develop distinctive styles. Many will be counselors and/or consultants--the most talented among them will play multiple roles. There seems to be little doubt but that the teacher of the future will be less a "giver of information" and become more a lifelong learner who also helps students in their search for knowledge. For this to happen, the teacher's personal knowledge must be available for the able student.*

The new teacher will be part of the responsive environment. However, the teacher alone will rarely be an adequate resource. Students should be encouraged to ask questions that go beyond the teacher's areas of competency. As counselor-consultant, the teacher who is responsible for helping the student find answers to questions will have to develop many skills. If such an approach is to be effective the schedule must provide adequate time, not only so that the new kind of teaching can take place, but also so that the teacher can secure special kinds of training and can maintain professional competencies. In the course of all of this some teachers will become such proficient scholars that they will develop as outstanding resource people in a given subject matter area and some may go beyond to the level of general philosopher. However, the majority will probably concentrate on new and better ways of working with young people, i.e., as counselor-consultants they will be particularly adept in the processes of education. They will understand problem solving and what is now called discovery method, will be experts in group process and understand how to lead but not dominate a seminar.* In essence this means they will be able to counsel students on intellectual as well as on emotional-social problems. In independent study situations, in group problem solving, in seminars and in special counseling sessions teachers will show a special talent for understanding questions that are asked, for clarifying statements that are made, and for leading students to critical examination of their beliefs and finally to self-examination. If such departures from the usual paradigms of classroom teaching** come to be accepted, there are many teachers who will find the new approaches in line with their inclinations and talents. Able students, as our studies have shown again and again, will also welcome such changes.

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*In this report the able student is considered to be one who can easily read two to ten grades above level and in addition is well informed.

There are already models for these suggested patterns of teaching. Research has been reported by educators who have been experimenting with discovery and inquiry methods,[30] with seminar-type discussions[31] and with teaching thinking in group situations.[32] In addition psychological and counseling research,[33] that is concerned with individual as well as group work, undoubtedly will contribute much to these new patterns of teaching.

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*This leading of a seminar will mean that students will do most of the talking and the teacher will continually encourage them not only to interact with one another freely but also to carefully consider what they are saying.

**Some studies estimate that the typical teacher talks two-thirds of the time and makes mainly controlling comments. It is foolish to assume that students learn only while the teacher is talking. There is reason to believe that students learn much more efficiently and that learning is retained longer if they do the talking and put ideas into their own words.

We have already noted that the need for helping the student to discover himself and to develop an understanding of the world in which he lives is an urgent and an unmet one. Such an enterprise will demand of the teacher not only conventional counseling skills, such as the ability to empathize, to be accepting and to reveal oneself as a "real person," but it will also demand that new talents be developed. We are suggesting a need for intellectual and moral counseling, and we know it will not be an easy task for either those who train the counselor-teacher or for the teacher himself. It will demand of a teacher skills in working on an inter-personal basis, a more-than-cursory understanding of self, certain philosophical insights and the breadth of knowledge a liberal education requires.

E. Implications for Research

1. Study of the Educational Process

Our foremost interest throughout this research was in the interaction between a total environment that was both responsive and evocative in nature, on a total organism, the individual superior adolescent. Obviously we could not conduct our study in such a holistic fashion, but we did approach this ideal in all ways that were feasible. The total environment is considered as the program, the teacher and the student's classmates. Extended beyond this we could include the community, the state, the nation and the world. Each of these environments might be studied in terms of multiple internal variables, and each or all (interactively) might be studied in relation to the individual student. It has been our conviction that research which will produce answers that are useful to teachers and school administrators must consider these living wholes. Many questions might be asked about any aspect of the experience or about the student himself.

In terms of the education process we have already indicated that we do not feel there is much merit in testing a program that is less than the best that can be devised. We hold that a program which will be maximally effective will have a total front approach. However, we feel that even with the finest of teachers and the best of programs there may be certain administrative adjustments that would increase the impact of the program. The amount of time devoted to it, during a given school day or over a span of years, will make a difference. Similarly, the physical environment for the program and the kinds of people who are chosen to work and interact together all may alter the effects. A few of the many questions that could be asked in relation to certain kinds of re-arrangements follow:

> Would there be relatively more attitude change if students were exposed, for a longer time each day, to materials and teachers that presented creative intellectual and humanitarian attitudes as desirable? Would two class periods a day of such emphasis, rather than one period, result in greater changes in students' motivation to learn? in their openness to psychological growth? in their freedom from prejudice? in their acceptance of self-actualizing behavior in women? in their general social concern?
>
> Would there be relatively more attitude change if students were exposed, over a longer period of time, to materials and teachers that presented creative intellectual and humanitarian attitudes as desirable? Would a two-year program result in more change and more permanent change than a one-year program? Would continuous emphasis through the elementary school or through secondary school (or through both) on these values result in significant and permanent changes?

> Would there be relatively more attitude change if students were placed in a program of a different nature? For example, would students show more change in an out-of-school, non-academic program in which their parents or friends or both participated? in which they met outstanding college students, classroom teachers, college professors, professional people and renowned scientists and artists? in which a great variety of materials were used, including tapes, records, films and tele-communication?

It would also be profitable to use a variety of research methods other than simply comparing the posttest scores of experimental students with those of controls. Studies of various kinds of processes would give valuable insights.

> What new kinds of understanding would studies which emphasize process (such as verbal interaction or problem solving behavior) provide for the researchers? Would the style of learning of the student provide clues that would aid in predicting which student would be apt to change toward greater openness and which student would show talent for more critical thought? Would it be possible to assess a student's strength of identification with a film model by comparing the adult's work patterns and values with the student's own behaviors and attitudes?

> What would more detailed studies of student behaviors, products and work patterns reveal? Would a student's expressed interest in ideas and independent learning be reflected in scholarly behavior? Would professed lack of prejudice be, in truth, revealed by social behavior which demonstrated tolerance? Would statements of aesthetic interests be supported by visits to museums and independent efforts to experiment with and produce in various media?

> What would various kinds of grouping and the resultant group interactions reveal? Would students show more desire to learn if placed in a group of eager and self-motivated learners? if in a school climate which valued intellectual pursuits? if exposed to creative, scholarly and productive adults? if placed with a group with the same degree of social dominance or recessiveness as they exhibited personally?

> What would be the impact of varying types of significant adults? Would creative intellectual teachers stimulate more independent learning and wide ranging intellectual interests than conventional studious teachers who do not

read widely? Would both of these types of teachers influence relatively more students toward the creative intellectual style than would the social leader teacher who obviously esteemed values (materialism, etc.) other than intellectual?

What would be the impact on girls of a special program which featured attractive and socially contributive women as role models? Would girls respond more positively (in terms of growth in the intellectual and moral realms) if they were placed with attractive female models who valued their own minds and had well-developed consciences? Would the additional dimension of active encouragement result in greater change than simply the presence of the model?

2. Study of the Individual

The study of the psychologically healthy and the potentially self-actualizing individual has been relatively neglected by the psychologist in preference to studying those individuals with symptoms of disease, malfunction and abnormalities. The psychology of human creativity is only beginning to be written in terms of adults and is still vastly neglected for the young person. And yet, studying the emergence of this potential in youth is of vital importance both for the youth and for his society. Such studies must consider the organism as a whole and, we have felt, go far beyond certain surface manisfestations of achievement such as facts learned or grades received. Thus, we have been concerned with personality development and with attitudes and values (motivation to learn what? drive to achieve what?) as well as with certain learning talents or skills. It is our feeling that such psychological assessment or "sizing up" must largely come from self definitions.

In two studies, one immediately preceding the research with which the present report is concerned and one which was conducted as Phase II of the present study, we have asked the intellectually superior adolescent to look at himself. These studies are designated as Report I and Report III and are discussed in the paragraphs which follow.

In Report I* we surveyed the interests and attitudes of about 400 gifted adolescents who were in the ninth grade; and through questionnaires, student self-reports, personality inventories and various other measuring devices, we were able to describe these gifted young people in terms of three "type-profiles": the studious, the social leader and the creative intellectual. The studious gifted students, whose values seemed to be adult-oriented, were found to approximate the Protestant Ethic ideal. The social leaders, whose value systems were peer-oriented, were found to be somewhat hedonistic and materialistic in their orientation. The creative intellectuals, whose value systems were more personally derived, were found to place high value on personal fulfillment and showed a distinct love of learning. They were also open to psychological growth and showed less dogmatism and rigidity than the other groups. They were also less interested in exerting power over others. We found that the students identified themselves as being most like one of these three with remarkable consistency on the instruments used.

As educators we have been deeply interested in the creative intellectual style, with its accompanying expression of independence in learning, high interest in ideas and general openness. We felt that motivation and attitudes of this nature would be desirable for students in general and thus we made a careful study of the kind of school experiences designated by the creative intellectual students as most desirable. Using these suggested program changes, our own previous research and experience, and the suggestions of outstanding educators and social philosophers we developed the guidelines for the present research (Report II).

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*Elizabeth Monroe Drews, THE CREATIVE INTELLECTUAL STYLE IN GIFTED ADOLESCENTS; Motivation to Learn: Attitudes, Interests, and Values, Report I in a series of three; Final Report of the Cooperative Research Program, E-2, U.S. Office of Education, "A Study of Non-Intellectual Factors in Superior, (Average, and Slow) High School Students" (East Lansing: College of Education, Michigan State University, 1964).

In Report III* we attempted through in-depth interviews and content analysis of the students' classroom and textbook contributions, as well as their written commentaries on the various elements of the course, to gain further insight into the interests, value systems and environmental influences of a group of the students who seemed to have the greatest predilection for dealing with ideas and for creative thought and activity (the creative intellectuals). These highly creative students were interviewed twice (each interview was approximately two hours in length); and through these interviews we have been able to gain an understanding of gifted, creative adolescents that would not be possible through questionnaires and paper and pencil instruments. In these interviews the students discussed their styles of thinking, their school and leisure time activities, their incipient philosophies of life, their past experiences and their dreams for the future, their views on education, their total life styles and the life styles of their families and friends.

Both studies are new ventures for us and are only beginning contributions in an enormously complex field whose boundaries have not yet been defined. It would be most valuable in pursuing the study of lives in superior youth to increase the number of dimensions studied and to make assessments in more depth and intensity. We might ask such questions as the following:

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*Elizabeth Monroe Drews, THE CREATIVE INTELLECTUAL STYLE IN GIFTED ADOLESCENTS; Process and Product: A Reassessment of Students and Program, Report III in a series of three; Final Report for the Media Branch, Title VII, National Defense Education Act, Contract No. 7-32-0410-222, U.S. Office of Education, "The Effectiveness of Audio-Visuals in Changing Aspirations of Intellectually Superior Students," Phase II (East Lansing: College of Education, Michigan State University, 1965).

> Would we gain further insights into the individual by self-descriptions which include: adjective check lists, autobiographies, essays on personal philosophy and on "significant others" either in their own lives or the world at large?
>
> Would we gain other insights by an intensive study of social behavior which might include: assessment in specially designed individual and group problem situations? in role playing? in free conversation? and in various kinds of performance tasks designed to tap both thinking and personality style?

VIII. SUMMARY AND IMPLICATIONS

A. The Concept of Utopia: Implication for Educational Change

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3. Lloyd Morgan, Life, Mind, and Spirit (New York: Henry Holt and Co., 1926).

4. Mumford, op. cit., p. 291.

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19. Brinton, *op. cit.*, p. 363.

20. W.R. Brain, "Science and Anti Science," *Science* , Vol. 148, April, 1965, p. 196.

21. Elizabeth Monroe Drews, "The Four Faces of Able Adolescents," *Saturday Review*, Vol. 46, January, 1963, pp. 68-71.

22. Brinton, *op. cit.*, p. 364-365.

23. Brinton, *Ibid.*, p. 364.

24. Manuel, *op cit.*, p. 319.

25. Dennis Gabor, *Inventing the Future* (New York: Alfred A. Knopf, 1964), p. 168.

26. Charlotte Bühler, "The Human Course of Life and Its Goal Aspects," *Journal of Humanistic Psychology*, Vol. 4, Spring, 1963, pp. 1-19.

27. Nicholas Hobbs, "Sources of Gain in Psychotherapy," *American Psychologist*, Vol. 17, November, 1962, pp. 741-747. Also see E.G. Williamson, "Counseling as Preparation for Self-Directed Change," *Teachers College Record*, Vol. 65, April, 1964, pp. 613-622.

28. René Dubos, "Humanistic Biology," *American Scholar*, Spring, 1965, pp. 179-199.

D. *Implications for Counseling and Curriculum Change*

29. Elizabeth Monroe Drews, *Student Abilities, Grouping Patterns, and Classroom Interaction*, Final Report of the

Cooperative Research Program, 608, U.S. Office of Education, "The Effect of Homogeneous and Heterogeneous Ability Grouping in Ninth Grade English Classes with Slow, Average, and Superior Students. (East Lansing, Michigan: Michigan State University, College of Education, 1963).

30. J. Richard Suchman, *The Elementary School Training Program in Scientific Inquiry*, Title VII, Project No. 216, N.D.E.A., Grant No. 7-11-038, June, 1962. (Also published Urbana: University of Illinois Press, 1963).

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APPENDIX

Bibliography

Tests

Other Materials

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TESTS

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STUDENT INTEREST
SURVEY V

Your responses on this survey are confidential. Answer quickly, accurately, and honestly!

1. **Name_______________________Address________________________**
2. **Birth date__________Present Age____Home Phone No._______**
3. **Sex: M__F__School___________________________Grade_________**
4. **Home Room Teacher________________Counselor________________**
5. **Father: Name__________________Living___Where Born__________**
6. **How much formal education did your father have? (Check one)**

   a.__Less than 7th grade
   b.__through grades 7 or 8
   c.__through grades 9 or 10
   d.__through grades 11 or 12
   e.__some college, business, or technical training
   f.__finished college
   g.__attended graduate or professional school after college
   h.__received an advanced degree
   What degree?________________

7. **Father's occupation: What does he do?____________________**
   With what company or organization?____________________
8. **Mother: Name__________________Living___Where Born__________**
9. **How much formal education did your mother have? (Check one)**

   a.__less than 7th grade
   b.__through grades 7 or 8
   c.__through grades 9 or 10
   d.__through grades 11 or 12
   e.__some college, business, or technical training
   f.__finished college
   g.__attended graduate or professional school after college
   h.__received an advanced degree
   What degree?________________

10. **Mother's occupation: (Check one)**
    a.__Housewife
    b.__Works part-time(___ days a week)
    c.__Works full time

Drews 9/62

10. (continued)

If Mother works what does she do?_______________________

With what company or organization?______________________

11. In your family are you (Check one)

a.___an only child
c.___the youngest child
b.___oldest child
d.___between the oldest and youngest

12. Number of children in your family (including yourself)___

13. How do you spend your leisure time away from school? (Check your interests in the space at the left, double check the one you enjoy the most. Comment if you wish.)

a.___team sports

b.___individual sports

c.___science and nature activities and projects

d.___reading

e.___hobbies

f.___art (drawing, painting, etc.)

g.___art appreciation (visiting museums, collecting prints, etc.)

h.___being with friends (riding around, going downtown)

i.___popular music (top hits)

j.___good jazz and authentic folk music

k.___classical music

l.___being with the oposite sex (dating, dancing, parties)

m.___dance as art form (read about, attend performances, participate)

n.___clubs

o.___discussions (ideas, theories, books)

p.___being alone (writing, thinking, dreaming)

q.___other____________________________________
(Specify)

14. What are your extra-curricular activities? (These activities can be either individual or group activities.) Check (✓) activities in which you participate, double check (✓✓) the one you enjoy most.

a.___sports or cheerleading
b.___music
c.___science
d.___art
e.___student government
f.___newspaper or other writing
g.___dramatics
h.___other______________________

____
(specify)

15. What has influenced you most in participating in extra-curricular activities? (Check one)

a.___Having a chance to do things I usually wouldn't do
b.___Being able to do things with my friends
c.___Participating now will improve my chances for getting a job or entering college later

16. How do you feel about the activities in which you have participated? (Check one)

a.___The activities give me an opportunity for intellectual and aesthetic experiences.
b.___The activities are a lot of fun.
c.___The activities provide me with new skills and information.

17. The way you spend your time (REAL) may or may not be the way you would like to spend your time (IDEAL). Please check one in each column.

During the school year, outside of class -

I spend a lot of time (REAL)		I would like to spend my time (IDEAL)
a.___	Doing home work and studying--getting things done	___
b.___	Idea tracking--reading, thinking, discussing.....	___
c.___	Being with the right crowd--really being in......	___

18. List offices you hold now or have held this school year. These may be in or out of school, including athletic or church organizations.

Office (president,secretary, etc.)	Club or Organization
______________________	______________________
______________________	______________________
______________________	______________________

19. School subject liked MOST. School subject liked LEAST.

____________________ ____________________

20. Is school work (classes, assignments, tests) interesting to you?

Yes___No___Comment if you wish.____________________

21. If you had an extra hour at school, how would you like to use it?

a.___seminars, freely discussing ideas
b.___activities and athletics
c.___getting some of my homework done, and my reports in good form

22. I like a teacher who: (Choose 3. List in order; first choice would be 1, last 3)

a.___keeps homework easy--we study, but it's not everything
b.___knows how important grades are
c.___encourages creative research and individual projects
d.___appreciates conscientious effort and willingness to follow directions
e.___knows broader implications of subject, and presents unsolved problems
f.___is always attractive and well-dressed
g.___encourages philosophical and ethical discussions
h.___jokes a lot and kids around--a real smoothie
i.___presents the subject matter within definite limits and gives specific assignments

23. *In comparison to your classmates, do you consider your ability to be:

a.___below average
b.___average
c.___above average

24. I would want my ideal school to have: (choose 3, list in order)

a.___a planned course of study
b.___the best library in town
c.___a winning team

---

*Ability Self-Concept rating was judged from responses to question 23.

Drews 9/62

24. (continued)

d.___groups that discuss philosophical and ethical problems
e.___good facilities for sports and social functions
f.___an honor roll for good students
g.___not filled with know-it-alls who study all the time and butter up the teacher
h.___supervised study periods
i.___free scheduling to allow for individual interests

25. How much longer do you plan to go to school? (Check one in each column)

	REAL (this is what will probably happen)	IDEAL (would like very much)
a. Graduate from high school	___	___
b. Some college or special school	___	___
c. Finish four years of college	___	___
d. Graduate work (specify degree)___	___	___

26. Who has been most influential in your decision about attending college? (Check those that apply; double check the one most important.)

a.___father
b.___mother
c.___counselor
d.___teacher
e.___myself
f.___other ______________________________
(specify)

27. If you were also free to do whatever you wanted, how would you choose to earn your living? (IDEAL)__________

____

28. At the present time what do you expect your occupation to be when you finish your education? (REAL)__________

____

29. In my future life: (Choose 3 only; list in order of choice, 1,2,3)

a.___I want to have lots of money and be in the country club set.

29. (continued)

b.___I want to be conscientious, persevering, and dependable in my work.
c.___I want to be creative and original, perhaps discover something new.
d.___I want to live up to my parents' expectations.
e.___I want to live my own life and make my own rules.
f.___I want to be well-liked in both business and social circles.
g.___I want to be cultured and individualistic, to follow my own interest even at the expense of friends, fame and fortune.
h.___I want to be a leader in my community.
i.___I want to be a respected and hard-working citizen.

30. How would you expect to be remembered at school? (REAL)
How would you like to be remembered at school? (IDEAL)

REAL		IDEAL
a.___	........Honor Student.........	___
b.___	........Star Athlete..........	___
c.___	........Very Popular..........	___
d.___	.....Brilliant, but not a..... grind	___

31. Time spent on studying school work. (Fill in both blanks. Use Monday through Friday for daily, include weekends for weekly.)

Daily average ___ hours   Weekly average ___ hours

32. Time spent on "general reading," not school studies. (Fill in both blanks. Use Monday through Friday for daily, include weekends for weekly.)

Daily average ___ hours   Weekly average ___ hours

33. When it comes to books, I am:

a.___an avid reader--read lots
b.___average--read some
c.___not interested--read rarely

34. Why do you read? Check one.

a.___It helps me get better grades.
b.___It gives me insight into the meaning of life and the universe.
c.___I don't read if I can help it.

35. Do you read a newspaper?________________________________
name (s)

Regularly____ Occasionally____ Rarely____

36. Which sections?

	Regularly	Occasionally	Rarely
a. local news	___	___	___
b. international	___	___	___
c. sports	___	___	___
d. women's	___	___	___
e. editorial	___	___	___
f. comics	___	___	___
g. entertainment (movies, TV, etc.)	___	___	___
h. advertisements and/ or want ads.	___	___	___

37. If you were only able to get one section, which section would you choose?

____

38. Do you read any magazines?

List	Regularly	Occasionally	Rarely
____________________	___	___	___
____________________	___	___	___
____________________	___	___	___
____________________	___	___	___
____________________	___	___	___

39. If you could get only one magazine, which one would you choose?____

Drews 9/62

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REASONS FOR OCCUPATIONAL CHOICE

Name________________________School___________________Date______

There are many reasons for deciding to go into a particular line of work. Some of them we have listed below. Please rank from one to nine the reasons listed as to how important they will be to you in choosing your life's work. A rank of one is given to the most important reason, two to the next and so on.

_____The work allows me to make new discoveries, do creative work.

_____It offers high pay.

_____It offers a stable, secure future.

_____It carries a high social prestige.

_____It presents straightforward, realistic problems for which an answer can be found.

_____It will put me in the front lines intellectually--handling new ideas or art forms, tackling crucial issues.

_____It will allow me to keep in touch with my parents and spend time with my family.

_____It presents a challenge for me even though there may may never be any final answer to the problems.

_____It offers an acceptable position in our society.

Drews 9/62

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REAL SELF DESCRIPTIONS*

(As You Think It Is)

NAME______________________________

SCHOOL____________________________

DATE______________________________

Please read the following descriptions of people. Think of yourself in relation to each and pick the one on each page which you think is most like you really are by placing (/) at the beginning of the paragraph. Don't react to just one or two of the sentences but try to keep in mind the whole person being described. Pick the one which resembles you most, all things considered. (No one is exactly like these descriptions but any given person is more like one than another.) Please be frank. Try to take a good look at yourself. Think of the way you really are and not the way you would like to be. Make your decisions carefully.

If you have great difficulty in deciding which paragraph describes a person most like you, you may go back through all of the paragraphs after you have checked one, and underline those sentences that are particularly descriptive of you.
HOWEVER, BE SURE THAT YOU HAVE CHECKED ONE AND ONLY ONE OF THE PARAGRAPHS!

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*The reader should keep in mind that this set of descriptions is used twice. The first time the student responds to the directions given above, Real Self Descriptions, on the basis of a view of himself as he actually thinks he is in reality. He is asked to choose one paragraph from each of the two sets of descriptions: I. Student Profile Check (My Type) and II. Self-Actualization in Women (Girls, Girls, Girls). The second time all materials are given to the student with a new cover sheet, entitled, Idea Self Descriptions, a duplicate set of the paragraphs. The response is to be on the basis of what the student would like to be, ideally. The use of the "Descriptions" this second time has necessitated only a change in the title on the cover sheet.

Drews 2/63

6

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I. STUDENT PROFILE CHECK*

I. ____I am a good student; in fact, I feel I am the studious type. I am a relatively well-organized and hard-working person. I try very hard to get my work in on time and I feel guilty if I don't. Deep down I feel that people who put things off are lazy and disorganized. I never quite measure up to my own standards, although I do study hard. Good grades are important and I always try to do my best. It matters to me what my teachers think because I admire many of them and if they mark me down or criticize me, I get upset. With all my schoolwork, I don't have much time to be frivolous and I can't read for fun as much as I'd like. As soon as I can, I plan to work in the summers and after school since this will help prepare me for the future.

II. ____You might say that I lean toward the intellectual type. My interests include almost all areas of knowledge and the frontier or avant-garde material in these areas. I enjoy art and drama and I like to listen to good music. Most of all I like to read and think. Books are my private passion --they've kept me up oftener and later than my dates have. However, studying my textbooks and school assignments often leaves me cold. Sometimes schoolwork seems pointless. To put it bluntly, I hate to memorize a list of facts or follow dull and unimaginative directions cookbook style without any real reason for doing so. In the future, working just for money doesn't have much appeal. Eating simply and wearing the same clothes would be worthwhile if I could, in that way, free myself to be truly creative or to discover something of value.

III. ____To me the most important thing is to have a good personality and be friendly--I want to be well-liked. Along with this I want to look sharp, have lots of nice clothes, and be well-groomed. Doing things of a social nature--going to parties and dances--are the most important activities for me. Doing well in schoolwork is not nearly as important for the future as a good personality, good looks, and general ability to get along. I like to help run things now and I want to be a leader in community affairs when I'm an adult. I want material success; in fact, I intend to have a beautiful home, good income, and lots of friends. I think it's fine to do things for others, but usually people who are concerned about the unfortunates in the world are radical and over-idealistic.

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*When administered to students the title used was My Type.

Drews 2/63

Drews 2/63

II. SELF-ACTUALIZATION IN WOMEN

(Boys choose one in terms of the kind of wife you would like)

I. ____ I want to be, as the song says, "strictly a female female." This means that I believe that "woman's place is in the home." Marriage, children, and the security that goes with a happy family are my main goal. I may or may not work a year or two after I graduate from high school but I want to marry before I am twenty. After marriage I don't plan to work. My children deserve to have a mother who is in the home and who will give them unlimited "tender, loving care." And after all, the modern woman has enough to do just being a good homemaker, family chauffeur, PTA member, and hostess without coming home all tired out from work.

II. ____ I like school and would like to go on to college for a year or two. College offers a new world of experiences, the fun of sorority life and the chance to meet new people--especially the kind of man I would like to marry. I may marry when I'm part-way through college and then work to help my husband get his education. I will try to keep up some intellectual or artistic interests and may even sit in on lectures or college courses from time to time. However, I intend to be at home while my children are growing up. I may work to help put them through college but not before.

III. ____ I think I've always wanted to learn and wanted to have a good education--college or beyond. Perhaps I'm a rebel, at least I rebel against the female stereotype that Madison Avenue and TV have built, the not-so-hidden persuaders that tell a girl it's unladylike to use her mind. Probably I will work most of my life (perhaps only part-time while

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*When administered to students the title used was Girls, Girls, Girls.

Drews 2/63

raising my family) but money is not the key factor. To me it is far more important to have inner freedom. The life of the mind--imagination and discovery--is a beautiful thing and I want it. Perhaps I will make a noteworthy contribution or possibly attain distinction. Certainly I want to be part of that minority of women who are creative intellectually and artistically as well as biologically.

Drews 2/63

ACCEPTANCE OF WOMEN SCALE *

1. Girls as well as boys need to risk danger and hardship for no better reason than achieving something memorable and noble.
2. It is often hard for girls to get good scholarships and part-time jobs, so we should try to change the situation so bright girls can have better opportunities to continue their education.
3. When a bright girl stops learning and using her head she usually becomes a busy-body.
4. Nothing can be more satisfying to a woman than a well-kept home, clean and neatly dressed children, and a good meal always ready for her husband.
5. Nine out of ten girls today will work 25 years.
6. Florence Nightingale's work in nursing and Jane Addam's work in social service have been truly creative social revolutions and women today with such ability and vision also should help make the world a better place.
7. Women who work are taking jobs away from men (4,000,000 are unemployed right now).
8. An intelligent couple will have a better marriage if they share both intellectual interests (because the wife is working or studying) and household chores.
9. I want nothing more out of life than to get married and live happily ever after.
10. I approve of the 1962 actions of engineering and dental societies which have (due to shortages of new students) indicated (in their professional publications) that they would like more women to train for these professions.
11. A nursery school cannot possibly provide an adequate environment for a child during those critical pre-school years.
12. I agree with "All men are created equal" and feel this means all human beings, including women and Negroes and other minorities.
13. Man is by nature the breadwinner and woman is the homemaker, and we shouldn't try to change such basic elements of human nature.

*See page 3 of this scale for footnote

Drews 63-64

14. A woman can be a feminine person and at the same time work at a job usually done by men.

15. Since 90 per cent of girls today get married we are wasting money giving them college educations.

16. The "good life" -- in Christian terms, devotion, sacrifice, being my Brother's Keeper (and all men are brothers) -- appeals to me more than anything.

17. Children and a husband are the central point of a woman's life, and are therefore just as demanding as any career or cause, and will foster full intellectual and emotional development.

18. The best and most stable marriages result when both the boy and girl are in their twenties and not in their teens.

19. Half of the women are smarter than half of the men.

20. The "good life" -- a fine home, a good car, and long vacations -- is what I want most of all.

21. We need nursery schools to supply a good environment for young children whose mothers work.

22. Girls should not plan to take liberal arts or technical courses while in college but should prepare for careers in teaching, nursing or home ec.

23. True love for her family and an active concern for mankind are inseparable for a woman.

24. Girls should make good in school and boys should make good in life.

25. Any woman, married or single, should receive exactly the same pay for a job as a man would.

26. A woman should find strong interests -- in a social cause, a profession, or the arts -- so her life will have meaning after her children leave her.

27. Women should decorate and enhance their homes and immediate communities, and men must be concerned with the larger world.

28. Women are healthier than men and live longer.

29. Love and charity begin in the home; therefore, women should stay in the home after marriage and not worry about extending their love and charity beyond.

30. The quality of attention given children is more important than the amount of time spent with them.

31. Men who become our great artists, scientists and philosophers are not as young as the average man when they marry.

32. Mothers who are always ready to be the chauffeur, always home when children return from school, and are devoted to the family's comfort are the best kind.

33. Women tend to respond emotionally, men by thinking.

34. There is more witch than witchery in the average woman scientist.

35. Social innovation (starting with the first mental hospital) is every bit as creative and imaginative as devising a new system of mathematics or discovering a drug such as penicillin or writing a poem.

36. Women who graduate from college and work at least part-time have children who are more independent and more apt to achieve intellectually.

37. I feel that women handle routine, detailed, repetitive tasks better than creative and imaginative tasks.

38. I agree with the doctors who are telling beaten-down, harried mothers to work part-time or to go to school.

39. Men admire interesting women who have fascinating talents, but they marry a woman who will devote her time to them as a good wife and Homemaker.

40. Women shouldn't give up their values and idealism; instead they should get enough education and professional training so that people will listen to what they have to say.

*When administered to students ♀∞ was used as a title for this instrument. Directions were: Although you will probably not agree completely with any one item, please mark your responses--True or False--on the answer sheet provided.

Drews 63-64

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THE HUMANITARIAN-ALTRUISM SCALE*

The following statements represent the substance of what certain well-known people are saying. We are interested in seeing how you feel about them. We know that you will probably not agree or disagree completely with any one item; however, please mark your responses--True or False on the answer sheet provided.

1. Since each person has basic needs for acceptance, recognition, and success, I personally can influence greatly someone else's emotional adjustment.
2. I feel that everyone is entitled to a good education--even if I have to help finance it.
3. I am more realistic than idealistic; that is, more occupied with things as they are than with things as they might be.
4. Each person, myself included, has inescapable obligations to other human beings.
5. I believe that everyone should stand on his own two feet.
6. Problems, especially human problems, are not as complicated as "do-gooders" and "eggheads" try to make out.
7. The government should provide more funds for studying the potentials of the individual instead of devoting the lion's share to developing nuclear power.
8. Our criterion in giving foreign aid should be: "Does it serve the best interests of the United States?".
9. I am always putting myself in someone else's place and thinking how it feels to be the wrong color or to not be very smart or very strong or very popular.
10. The best way to keep from being cheated is to be a little crafty yourself.
11. In my life, I intend to place the welfare of others above my own personal advantage.
12. What we do (within legal limits) as individuals is our own business and really doesn't affect other people much anyway.

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*See page 3 of this scale for footnote

Drews 63-64

13. **If I daydream at all, it's down-to-earth stuff; none of this vague, idealistic mooning about the future and me on a White Horse doing Great Things for a Cause.**

14. **Without a definite commitment to the betterment of humanity, one might as well be a robot.**

15. **The spirit of human brotherhood is more effective than technology in promoting favorable change in the condition of mankind.**

16. **It's not wise to make any great effort to defend minority groups which others find disagreeable.**

17. **If I were to be one or the other, I would rather be a Werner von Brown than an Albert Schweitzer.**

18. **The key to the reconstruction of the world is the creative, unselfish work which comes out of genuine caring for all peoples.**

19. **A sense of responsibility for making the most of oneself should be coupled with a strong feeling of social responsibility.**

20. **A real red-blooded American boy usually has a gun and knows how to use it.**

21. **The problems that face mankind can best be dealt with by technologists whose brilliant mechanical and scientific know-how are our best chance for keeping abreast of man's most pressing needs.**

22. **I suppose it's fine to talk about peace and brotherhood, but it's a cold world with a cold war and we've got to be a little more realistic.**

23. **Once we prove that we have and can maintain a defensive military force and a technology superior to that of Russia, our main problems will be solved.**

24. **If man is to survive, it will be necessary for him to concentrate more on the social sciences than on the physical sciences.**

25. **We should be ashamed to die until we have won some victory for humanity.**

26. **Being a member of an American Peace Corps would interest me greatly.**

Drews 63-64

27. If we are going to come to grips with the major problems which face us, we are going to have to train increasingly larger numbers of scientists and technologists.

28. It is more important to spend government monies for space exploration and technological development than to establish national parks and wildlife reserves for a few nature lovers.

29. Working effectively with people is just as difficult and challenging as theorizing about the structure of the atom.

30. I would like very much to participate in activities which would help the underprivileged.

31. The War on Poverty needs and deserves our best minds.

32. Competence is more important than compassion.

33. Science and technology have led men to worship things, and perhaps now it is time to take things out of the saddle and put man back in.

*When administered to students H-A **Test** was used as a title for this instrument.

Drews 63-64

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FORMAL INSTRUMENTS

The Omnibus Personality Inventory is a series of scales investigating "varied motivational characteristics of students, or variations in academic atmospheres within college cultures or subcultures." (Center for the Study of Higher Education, OPI Research Manual, p. 1). It has been developed by McConnell and Heist from an assemblage of thirteen personality scales that were derived by Darley from the Minnesota Multiphasic Personality Inventory (Hathaway and McKinley, 1951), the Minnesota T-S-E Introversion-Extroversion Inventory (Evans and McConnell, 1957), and the work at the Institute for Personality Assessment and Research. The present forms of the instruments are the results of several steps of scale development and refinement beyond this initial stage. The version that we have used has been reduced to five scales--all have been demonstrated to have high internal consistency and reliability. Kuder-Richardson 21 estimates were computed on a normative sample of 2390 college freshmen, and the reliability for these scales ranged from .71 to .88. All were suggested by Dr. Heist as being particularly appropriate as a way of identifying high level learning motivation and marked psychological openness among able adolescents. Previous use of the OPI with gifted adolescents has shown that highly intelligent fourteen- and fifteen-year-olds who read, on the average, above the twelfth grade level score within the same range as does the average college freshmen who is seventeen or eighteen years old.

Up to this time the Omnibus Personality Inventory has not been published although it has been used extensively by the Center for the Study of Higher Education in their research and has also been used widely in certain allied research projects. Throughout these years of study, the Center has continued to refine the instrument. In general format the instrument is similar to the Minnesota Multiphasic Personality Inventory (MMPI) and gives the students a series of statements to agree with or deny. A good number of the true-false items from the MMPI as well as items from other similar instruments are used in the OPI. The Center for the Study of Higher Education is making arrangements to publish the test.

The Allport-Vernon-Lindsey Study of Values*, originally published in 1931 and revised in 1951, translates Sprangler's "ideal types" (theoretical, aesthetic, social, political, economic and religious) into measurable dimensions. It employs a "forced choice" method for each item which requires the testee to show preference for one value or activity (corresponding to one of the "types") over another. The final scores indicate the relative importance of the six values within a given personality. When the 1951 instrument was tested for internal consistency on both a split-half and item-analysis basis, using the Spearman-Brown formula, the mean reliability coefficient, using a z transformation, was found to be .90; and an item analysis shows a positive correlation for each item with a total score for its value, significant at the .01 level of confidence. The mean repeat reliability coefficient using the z transformation was .89 for a one-month study, .88 for a two-month study. With the A-V-L as with the OPI, the principal investigator in her prior studies, and other researchers as well, has found that intellectually superior adolescents who read, on the average, at beginning college level and whose intelligence quotients average above 120 encounter no problems in understanding the items of the test.

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*Allport, Gordon W., Pattern and Growth in Personality (New York: Holt, Rinehart and Winston, Inc. [1961]), p. 456.

The Critical Thinking Test, Form G is a 52-item scale of objective questions designed to measure the main abilities thought to be involved in the problem solving aspects of critical thinking. A perfect score is 52. The test-retest reliability of this instrument after a one-year interval is .83. When administered to 183 average and 126 superior eleventh graders (identified on the basis of IQ's in a study by Drews*), the means were 21.22 and 37.63 for average and superior students respectively. The mean for 2,746 entering freshmen at Michigan State University was 31.40.** In a grouping study also done by Drews, the mean for superior ninth graders at the beginning of the experimental year was 27.88.***

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*Elizabeth Monroe Drews, THE CREATIVE INTELLECTUAL STYLE IN GIFTED ADOLESCENTS; Motivation to Learn: Attitudes, Interests, and Values, Report I in a series of three; Final Report of the Cooperative Research Program, E-2, U.S. Office of Education, "A Study of Non-Intellectual Factors in Superior, (Average, and Slow) High School Students" (East Lansing,Michigan: College of Education, Michigan State University, 1964).

**I.J. Lehman, personal communication, August, 1963, in relation to norms developed from a study of MSU freshmen in 1961.

***Elizabeth Monroe Drews, Student Abilities, Grouping Pstterns, and Classroom Interaction: Final Report of the Cooperative Research Program, 608, U.S. Office of Education, "The Effect of Homogeneous and Heterogeneous Ability Grouping in Ninth Grade English Classes with Slow, Average and Superior Students" (East Lansing, Michigan: Office of Research and Publications, College of Education, Michigan State University, 1963).

The Rokeach Dogmatism Scale (Form E), 40 items, and the Rokeach Rigidity Scale, 22 items, both are Likert-type scales to which the student is asked to indicate on a six-point scale, the degree of their agreement-disagreement with a statement. The purpose of the Rokeach Dogmatism Scale is "to measure individual differences in openness or closedness of belief systems . . . [as well as] . . . general authoritarianism and general intolerance." The Rokeach Rigidity Scale measures differences in acceptance or resistance "to change of single beliefs (or sets or habits)." In samples tested at Michigan State University, Ohio State University, and at a VA domiciliary, the dogmatism scale was found to have split-half reliabilities ranging from .68 to .93. At Ohio State University a .71 reliability was obtained by a test-retest, with five to six months between tests.*

The principal investigator has used these scales over a ten-year period with able junior and senior high school students, and they have encountered no problems in reading comprehension. As was pointed out in the present report (pages 189-190, 215),although the instruments seemed appropriate for earlier research which we conducted, there were certain assumptions made in the present study relating to the importance of time perspective and dedication to work or to a cause that are incompatible with certain assumptions (as to the meaning of the open mind) that are basic to the Rokeach scales. The proposal indicating that this instrument would be used was accepted prior to the construction of text and films and the final specifications of emphases in this program. However, these scales have been omitted from the test battery used in Phase II, the follow-up study.

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*Milton Rokeach, The Open and Closed Mind (New York: Basic Books, Inc., 1960), p. 90.

INFORMAL INSTRUMENTS

A. The *Student Interest Survey V* is a questionnaire that elicits information on students' family background, current interests and activities, attitudes toward school and learning, and plans for the future. Within this questionnaire are three scales comprised of items that had significantly differentiated (beyond .05) the responses of students identified (by self-descriptive profile checks) as "creative intellectual," "studious" and "social leader" on previous surveys.* We have no reliability information on the scales on the *Student Interest Survey V*. However, this form was derived from *Student Interest Survey IV* for for which a Kuder-Richardson 21 was computed on a group of 109 gifted fourteen and fifteen year olds. The internal consistency of these scales is: creative intellectual .85, studious .75, and social leader .82.

B. The *Student Profile Check*: consists of three sets of composite descriptions of students that correspond to the scales developed by the investigator (*Student Interest Survey V*,* *Acceptance of Women Scale* and the *Humanitarian-Altruism Scale*). On the first, students are asked to check the "type" of student, on the second to indicate the preferred kind of woman (wife in the case of boys), and on the third to choose the philosophical orientation that most adequately describes them. In the spring of 1962 a test-retest reliability of the "student" profile check, after approximately a six-month interval (with no intervening experimental treatment), was done utilizing tetrachoric r. The correlation for each of the types is given below: (r tet)

Creative Intellectual	.81
Studious	.83
Social Leader	.91

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*No tests of reliability have been done on the current data.

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OTHER MATERIALS

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STUDENT REACTION AND EVALUATION SHEETS

A. Mid-term Evaluation

Given only to experimental students.

No mimeographed sheets used.

Teachers instructed students to write out their response to the course as presented to that date--which included Introductory Film and the Four Worlds of the Student Textbook.

B. Final Evaluation

1. Experimental

FINAL EVALUATION

Name____________________School ______________Date______

Evaluate the Social Studies V course you have taken this past semester. Consider your reading (text, scripts, magazines, biographies, other books), the films, and the discussions. The important points to keep in mind are:

1. How much has this contributed to your knowledge of the world?
2. How much have you gained in your knowledge of people--the way they live, how they work, and the concerns (thoughts, ideas) they have?
3. How much has your understanding of yourself (what your interests are, what attitudes and prejudices you hold, what you value, who you are) improved?
4. Which single idea or person has made the deepest impression on you?

2. Control

COURSE EVALUATION

Name______________________School_______________Date______

Evaluate the Social Studies V course you have taken this past semester. Consider your reading, discussions, and any films you might have seen. The important points to keep in mind are:

1. How much has this contributed to your knowledge of the world?
2. How much have you gained in your knowledge of people--the way they live, how they work, and the concerns (thoughts, ideas) they have?
3. How much has your understanding of yourself (what your interests are, what attitudes and prejudices you hold, what you value, who you you are) improved?
4. Which single idea or person has made the deepest impression on you?
5. How much different do you feel your course was than the experimental?
6. How much contact have you had with students in the experimental class?
7. Which class would you rather be in? (COMMENT)

C. Film Evaluation

FILM EVALUATION*

Name_______________________ Date_______________________

School_______________________

COMMENTS ON THE________________________________FILM

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*Administered immediately after showing of each film and before any class discussion of that film had taken place.

D. Discussion Evaluation

EVALUATION OF DISCUSSION BY STUDENT*

Name________________________ Date______________________

School______________________ Film discussed__________

1. Are you interested in the subject of the discussion?
Yes__ No__ Explain:

2. What do you feel were the most important ideas talked about today?

3. Did you agree with everything that was said? Yes__No__
If no, tell what you didn't agree with.

4. What else should have been said about the topic?

5. How would you rate your part in the discussion? (check one in A and one in B)

A	B
Better than others________	Better than I usually do___
About the same as others___	Same as I usually do______
Not as good as others______	Less than I usually do_____

6. Do you think you could have made better comments than you did? Yes__ No__ If yes, why didn't you?

7. What do you think was the quality of the total discussion?

Outstanding____
Good ____
Average ____
Fair ____
Poor ____

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*Administered for class discussions that took place the day after the showing of each film.

LETTERS TO PARENTS AND STUDENTS

LETTER FOR PARENTS

Dear__________:

In each of Lansing's four junior high schools one Social Study V class is trying out a series of new guidance materials. ________is in the experimental class in our school. This class is made up of students who can read at adult level (superior ability in reading was the basis for selection) and who would have the ability to do well in occupations requiring a college education or the equivalent. It should be made clear at this point, however, that there are other children with equal ability who are in other classes and who are not using the new materials.

The new program consists of a new kind of textbook and a series of ten documentary-biographical films. The textbook presents an overview of problems and prospects as they appear today in the natural, aesthetic, technological and human worlds. For the past year magazines and books have been searched for significant items. These have been mounted (in abbreviated form) with appropriate illustrations and each student will receive approximately one hundred pages of this material. It is our hope that students will not only read these selected passages carefully, but also be interested in going beyond to read further in materials that held a particular interest. Our thesis is that one cannot think intelligently about college curriculum or career unless he has a fairly good understanding of the world about him.

Given this understanding, which will begin with a four-week survey and continue as the student adds his own writings and clippings, our next concern is that the student begin to understand himself and to develop a sense of his own identity. How does one find himself and deal meaningfully with this complex world? Materials relating to this problem will be studied at the same time the student is viewing the films. Eight (the additional two will be of an introductory and summary type) of these films will be of creative and intellectually active men and women who have worked out career and life patterns in the arts, sciences, and social sciences. It is our hope that these will be seen as possible and desirable ways that men and women can deal with their environment. In addition to these specially prepared materials, there will be biographies, fiction, and current magazines to read as well as the usual array of career pamphlets and books. Throughout, we hope to make the program individualized and as the student adds materials to his open-end text and chooses biographies to read we hope these choices will reflect his own developing interest in an area of work or study and not be chosen on the basis of "least effort" or "what everyone else does."

The research and the development of the films and text have been made possible by a grant from the U.S. Office of Education to Dr. Elizabeth Drews at Michigan State University. After this year of trying out the materials they will be further edited and, we hope, made available to other schools.

To the Student:

You have been promised a "different" occupations course--a course where you will have an opportunity to read widely about ideas and values, to think critically about those ideas and values and to have your own ideas and values count. With such a course, the textbook has to be "different" too. It will serve as a sort of "spring board" to some of the new ideas and values you will be considering and testing in terms of your reading, thinking and discussions. You will be introduced to these concepts via some exerpts from magazines and newspaper articles, cartoons, poems and quotations. You might consider them as tantalizers--a sort of tempting "taste" of an idea that you would like to read more about. Your teacher has the complete article in a file if you wish to read it. You will also be provided with an extensive bibliography of related books and a supply of current periodicals.

This textbook is "different" in another way. We say that it is flexible--flexible in that you can arrange the materials in it according to your own ideas about the order of its articles and contents. This means that you will have to read it and arrange it as you feel it should be. One way that would help you get started is to write your reactions to the articles in the margins as you read them. Since the book is loose leaf, you will be adding your comments and choice of articles, cartoons, quips, quotations, or poems which you feel are apropos to it. You will find a supply of interesting and challenging magazines in your classroom for reading and clipping as source materials for your book. Or you might prefer to write a summary of a book for it.

In the introductory film, Dr. Drews explained how our world really consists of many worlds--each one related and inter-related--and that we as individuals have the responsibility of recognizing, appreciating, and contributing to them our ideas and values as we live and work in them. Your careers, their eventual choice and fulfillment, will reflect your understanding of this inherent responsibility. To assist you in developing this understanding, the world at large has been divided into four worlds so you will be able to consider particular aspects of it at one time. These four worlds are The Natural World, The Aesthetic World, The Technological World, and The Human World. You might use the following yardstick to identify them:

> The Natural World, the flora, fauna, and formations not made by man, will be considered in terms of

man's place in the universe and his responsibility for conserving, maintaining, and improving it. The beauty of this world will be presented and problems involving animal and plant life, as well as the depletion of natural resources will be considered.

The Aesthetic World, the world which man has created to transcend mere physical existence, will be concerned with the various art forms: painting, literature, music, dance, architecture, etc. Encouragement to participate in this world through actively contributing or developing a taste for the beautiful involves another facet of individual awareness. Neither man nor children can live fully by bread alone.

The Technological World, the world which has grown out of the industrial and scientific revolutions of the 19th and 20th centuries, will be viewed as both threat and promise. It allows us time to appreciate and develop the Natural and Aesthetic Worlds but it also is rapidly destroying much of the Natural and some of the Aesthetic World. Man's responsibility in using man-made innovations for the improvement and benefit of mankind and of the world at large will be explored.

The Human World, man's relationship to man, is intimately related to the other worlds. However, the special emphasis will be humane consideration and regard for the betterment and understanding of mankind. We will also explore the potentialities for human improvement, Biographies of individuals who have creatively contributed to the world will be introduced to provide models for inferences as to how man might shape his environment in culturally enhancing ways.

Since you are the first students to use this book, you should consider yourselves as an editorial board whose responsibilities include reading the book critically and judging its contents in terms of your experience with it. If you feel that some ideas, issues or individuals have not been presented to your satisfaction or have not been included, you should indicate these feelings in your book. You probably will find materials that you think will improve and strengthen it as you read more extensively. Be sure to indicate those ideas and your reasons for selecting them.

As you have read this introduction you have probably realized that the final form of each textbook will be different. Each one will reflect the interests of its owner. You will have arranged its scrambled contents to your own way of thinking, expanded it according to your own ideas, illustrated it with your own drawings or other illustrations and your comments will reflect your own reactions to the ideas and values it presented. There is one more idea that we would like you to keep in mind as you read and work with this book. We would like you to write your personal introduction to it so that it will reflect how you view its use and your intimate feelings about the worlds of man.

We hope that you feel that we have kept our promise of providing you with a "different" textbook. Now it's your turn to personalize and individualize it to your own taste and heart's content!

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FILM RESUMES

Each of the ten films in the Being and Becoming Film Series has been described briefly. Space has not permitted us to give more than the flavor and to indicate the general approach taken.

INTRODUCTION

The Being and Becoming Film Series, Film No. 1

INTRODUCTION, the first film in the series, begins with a walk through the woods. We see the branches of trees overhead silhouetted against the sun and sky. We observe a man and woman examining some of the plant life in the woods. They show no awareness of the camera which accompanies them. This serves as an introduction not only to the natural and aesthetic themes of the series but also to the intimate, informal style of cinematography. During this interlude in the woods we hear a woman's voice saying: "Awareness--openness to all that is around--this helps us to live richly and completely." This idea is expanded and it is suggested that one can organize the complexity that accompanies awareness into four worlds--the natural, aesthetic, technological and human worlds.

In the next scene, this voice is united with the image of the woman we saw in the woods. It is Dr. Elizabeth Drews, who now introduces herself and speaks directly to the viewers of her interests in education. This is the second style of cinematography which is used throughout the series. Dr. Drews concludes this scene saying: "Today we're going to meet four college students who are at about the stage where you will be soon. They'll be looking back to experiences--learning and feeling experiences--how their lives unfolded, what they did that meant a great deal and what they wished they had done." These students then discuss the manner in which they enriched their educational experiences on their own, with friends, and with the help of interested teachers. Some also mention how they failed to take full advantage of many educational opportunities offered to them during their high school years and how this affected them when they reached college.

Throughout the remainder of the film, individual statements made by these students introduce each new section. One section speaks of self-awareness and creativity, which Dr. Drews defines as " . . . total involvement, commitment to finding something out, making something better or more beautiful, solving an unsolvable problem." Viewers are encouraged to become active participants in their own education instead of simply being uncritical consumers of the knowledge dispensed by their teachers.

In another segment of the film, one of the students tells of what he considers to be the first purely aesthetic experience he had as part of his secondary schooling. Dr. Drews follows this comment, saying: "Art is everywhere, for the looking, for the interest." As she continues to speak of the ready availability of inexpensive art reproductions, we see several examples. A print from an art store is compared with a reproduction of the same painting in a magazine. It is suggested that such prints from magazines can be matted or framed for hanging on a wall; we see a magazine reproduction suddenly acquire a matte and then a frame. Dr. Drews explains: "Whether it's a bouquet of flowers you arrange or a dry branch on a wall, it's possible to be aesthetically sensitive and aware in everything you do in life. Even selecting new buttons for a coat can be an aesthetic as well as a practical experience." The viewers see a bouquet of flowers, a sunstreaked dry branch casting shadows on a wall, and a choice made from trays full of buttons.

There is more discussion of artistic creation and how simple and personal it can be. As an example, we see and hear one of the students singing a lovely folk song. Then, as an example of creative activity which requires skill, knowledge and prolonged effort, we hear a musical piece composed by another of the students. As the music continues, he comments on how important it was to have a group of friends with whom he could share his ideas and whom he could use as a trial audience for his first efforts.

Dr. Drews concludes Part I of this film by emphasizing that "the four walls of the classroom or the hard covers of the textbook" should not be considered the boundaries of an adequate education. She suggests that students consider the entire world and all experience as their resource materials and comments: "You may decide that you don't want four worlds. You may prefer to have one or seven. You should put it in your own frame of reference. Learning, to be real, has to make sense to you. You must interpret the world in your own terms."

Part II of Introduction was presented after the students had worked on their textbooks for two months and just prior to the showing of the remainder of the films. It is designed to be shown following a repeat viewing of Part I. If the primary emphasis of Part I was: "Expand your horizons, look both within and without, discover the many facets of the world in which you live," then the message of Part II could be stated as: "Now, begin to organize the discoveries you've made into an integrated whole so that you will be a distinct individual capable of living a useful and enjoyable life." The emphasis is on shaping one's life rather than feeling helpless. There is a discussion of the pressures that often make it difficult for young people to develop self-awareness and fulfill their personal potential through the growth of idiosyncratic abilities and the pursuit of their private dreams. Pressures to conform to group norms (avoid doing anything considered "odd-ball") and to make early career choices before adequately exploring the possibilities of self and the world are seen as particularly detrimental to personal fulfillment.

At this point, the eight film models are briefly introduced as examples of persons who have not succumbed to many of the usual pressures. They are spoken of as individuals who have a broad knowledge of the world but are not overwhelmed by it--psychologically mature people who are self-aware and self-actualizing.

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EUGENE PETERSEN

The Being and Becoming Film Series, Film No. 2

Eugene Petersen, an historian who re-creates history in Michigan, is the first model presented in the style-of-life films of the Being and Becoming series. As he is seen at restoration sites in northern Michigan on Mackinac Island, he explains that historical restoration is not only a promising educational tool but also a complex scholarly process. He says: "For me there is a very creative feeling in restoration work--working with highly creative people and my strong desire as an historian just to find things out." The intrigue of the discovery process--"finding out"--is Dr. Petersen's motivation and reward, and Dr. Drews comments that this is true of many scholars and scientists as well as historians. Something unknown "becomes a thorn in their flesh, they care desperately and all of the time." Not only knowledge but also imagination are required of such men if they are to reach solutions, and they must always be willing to "think of many possibilities, perhaps move to new mental realms."

The discovery process is presented visually by the endless digging and sifting of the soil for artifacts, and the often surprising and always exciting uncovering of remnants of buildings and other structures at restoration sites. Such discoveries often require the knowledge and skill of many individuals and Dr. Petersen explains that he "depends quite heavily on people from all over the country who have made it their special province to become expert in some phase of history." As he speaks of the great diversity of scholarship required in his work, the viewer gains insight into the variety of occupations and activities encompassed by the term "history." Dr. Drews comments that such scholarship is necessary on every level if we are "to remember that we are human. We don't want a 'great mutation' that will make us forget our past--forget our heritage."

Dr. Petersen also describes his style of life, both in Lansing where he lives with his family during the winter and on Mackinac Island where they all live and work in the summer. Although his wife is not a professional historian, she works with him constantly and her interest in history is as keen as her husband's. Dr. Petersen feels that sharing these interests and experiences contributes additional richness to their relationship. Since his work is his pleasure, Dr. Petersen's personal as well as professional life exemplifies the sense of fulfillment that is the result of complete dedication to a task that calls for skill, imagination and creativity.

In the biographical interview at the conclusion of the film, Dr. Petersen speaks of his own education. He tells of his early discovery and love of books and how learning became "a way of life . . . a continuing thing, a process of having challenges before you and meeting these challenges." In the course of this conversation, a definition of education is offered that strengthens both the emphasis on personal learning in the introductory film and the emphases on discovery and scholarship in Eugene Petersen's work.

MARY COLEMAN

The Being and Becoming Film Series, Film No. 3

The "black robe topped by a stern face" image of a judge must certainly be revised after this film visit with Mary Coleman, Judge of the Probate and Juvenile Court of Calhoun County, Michigan. As the second model of the film series, she is revealed as an attractive, warm and concerned member of the human race who happened to become a judge. Where the processes of discovery and scholarship were explored in the life and work of Eugene Petersen, the application of knowledge through complex decisions directly affecting human welfare are stressed in Mary Coleman's work. As she describes the typical process followed by the court when dealing with a youngster in trouble, it becomes evident that the Court's purpose is to help rather than to punish the child. Case workers are assigned, teachers, neighbors and friends are interviewed, and often a psychiatrist is consulted. And then, when all the information and recommendations have been assembled, Mary Coleman must make a decision. Decisions for a judge are seldom clear-cut and, as Mary Coleman says, there are times when

> . . . it would take more than a Solomon to decide what is going to be right for a certain child. I see no other way to do it but to do what you feel in your own conscience is right and, of course, in some cases, I really think there is no answer that's a really good answer.

When trying to solve such problems, it becomes apparent that the tasks which confront one individual may be as complex as the entire field of history. Knowledge is clearly required. However, when knowledge is not sufficient, Dr. Drews comments that "there are principles that good men, from the beginning of time and throughout the world, have agreed upon. These principles become your conscience."

Mary Coleman's work involves much more than sitting on the bench and making decisions. Although each case is infinitely complex and she recognizes that "there is more than one cause for juvenile delinquency," she feels that "if there is one place we can prevent it, certainly it is the home." Film segments show Mary Coleman addressing women's groups and leading a class, instituted through her efforts, in which women of low educational and economic levels are helped not only to keep their children out of trouble but also to improve every aspect of their home life. She shows great empathy with and understanding of these women, whom she describes as having "very little money, often very little training, and more often many, many problems." Dr. Drews remarks that in spite of all these problems "we know there are answers and prospects, too." She describes what is being done by such groups as the World Church Service, the Peace Corps, 4-H groups, and Higher Horizons, and suggests that there is also much that one "can do on an individual basis. You can talk to a lonely child, or you can read a book to a blind person."

Mary Coleman also discusses the relationship between her work and her family. She says:

> I think that before I was elected Judge . . . I spent more time away from home, speaking, socializing or what have you. But now I have so many things to do that I'm literally forced to make more of a plan and, in doing this, I can plan to spend more time with my children and with my husband.

She also feels that "a non-working mother can neglect children just as much or more [than a working mother] by thinking, 'Well, I'm here all the time. I don't have to pay attention to you.' It's what you do when you are at home that counts."

A biographical interview concludes the film and reveals further aspects of Mary Coleman's background that are pertinent to her current work and beliefs. They speak of the need to have faith in both people and in the future, and Mary Coleman concludes by re-stating the main emphasis of this film:

> I believe that each one of us is important. What is done by someone on the other side of the world can affect me on this side, and vice versa. And every person really is charged with developing himself to the full extent of his ability, both toward excellence and responsibility. It can affect, perhaps not only himself and his immediate surroundings, but maybe even generations to come.

ROBERT VON NEUMANN

The Being and Becoming Film Series, Film No. 4

Robert von Neumann, the third model of the series, is an artist, silversmith, jewelry-maker, and Professor of Art at the University of Illinois. As the film opens he is working on a piece of jewelry, surrounded by students, and telling of when he

> stumbled upon an old, dusty book at the Chicago Art Institute on the techniques of working in silver. I didn't exactly see a light bulb going off in front of me, but I knew that this was exactly the direction that I'd like to follow. . . . And really from that point on I found a very engrossing direction of expression.

Dr. Drews explains that "this is the sort of thing that scientists call serendipity." The idea of serendipity is thus introduced as another aspect of imaginative scholarship and is compared to "what happened to Fleming when he discovered penicillin."

However, neither the scientist nor the artist can expect serendipity to serve as his sole avenue to discovery. Robert von Neumann finds that research in design and technique is essential. He feels that one

> must look at man and his environment through the eyes of the past and present. Just looking and gathering and absorbing so that you have made of your mind sort of a treasure house which, once you become interested enough in art to do something yourself, will never leave you without ideas.

Dr. Drews comments that such receptivity is "what philosophers have called a state of being--living fully and completely in the present. But also it takes hard work and intellectual effort. Genius involves scholarship as well as the imagination."

Robert von Neumann also regards people a source of ideas and excitement, and finds this is particularly true of his relationship with his students. He is seen with a group of students in the university art gallery and also very much involved in helping students in a classroom. He comments on the advantages of the dual role--teacher and artist--saying, "students stimulate the teacher as much as the teacher stimulates the students. Often when helping students to find solutions to their artistic problems, I find a solution to a very immediate problem of my own."

Finally we see some of Mr. von Neumann's finished works and he explains that much of their unique appearance is due to the Japanese metalworking techniques he employed in making them. The charm and simplicity of these objects of beauty is then juxtaposed with the apparent chaos from which they arise--a workbench cluttered with an astounding array of saws, files, torches, and other metalworking tools. As Robert von Neumann works with these materials he seems much more the rugged craftsman than the effete artist, a recurring American stereotype. He is also shown very much absorbed in transforming a lump of clay into a representation of his personal vision. He feels that one of the joys of ceramics is that "the mental process of planning occupies so little of the construction time that elements of my experience seem to flow directly into the clay through my fingers. The finished product of my hands is often somewhat surprising to the intellectual or critical part of my being."

In the interview with Dr. Drews at the end of the film, Robert von Neumann again emphasizes the importance of continually exploring and remaining continually curious so that the mind will become an endless source of ideas, techniques and excitement. He feels this is particularly important if the artist is to communicate his private vision to a responsive public. Dr. Drews concludes the film by describing her first meeting with Robert von Neumann. She found that "he cared about people as well as about art, and was interested in many things. In some ways he might seem to be a Renaissance man. This is something that more and more people have the time and freedom to become."

BARBARA RADMORE

The Being and Becoming Film Series, Film No. 5

Barbara Radmore is a physician specializing in Radiology and is the youngest model in the Being and Becoming series. She was unmarried at the time the film was made but is now the wife of a psychiatrist, Dr. Reid Kimball, and has two baby girls. Adjustments have been made in her work schedule but she continues as co-partner in the radiology clinic attached to Salem Memorial Hospital in Oregon. In the opening scene of the film, the attractive Dr. Radmore is advising a physician concerning some X-ray photographs which he has brought for her to study. In a field in which "the woman in white" is always a nurse, Barbara Radmore has joined the male-dominated ranks of the doctors and, as a radiologist, is a constant advisor to them. As a youngster, she had considered many careers but decided that most of them " . . . were really only pleasant hobbies and totally inadequate as a permanent goal." She finally chose medicine because: "I had the feeling you could discover and continue to learn in medicine--that there would be really no limit to what you could learn." That she has continued to do precisely that is evident in her attitude toward radiology, which at one time represented a somewhat disappointing compromise. She says: "Although I felt badly about my choice of radiology once, it was because I hadn't realized the complexity of the field. Understanding--knowing what I know now--I'd never go back to choosing internal medicine even if I were to be miraculously changed to that other slightly more flexible, more adaptive sex.

Barbara Radmore's love of complexity and challenge is reflected in all aspects of her life. She does not "like blah people and blah things and, well, all that goes with tranquilized living. . . . I don't think you can burrow the complexity of life into a nut shell and say 'Here it is'--you know, think healthy thoughts and the world will be great. That's the awful 'brave new world' Huxley wrote about." Dr. Drews comments: "Every healthy individual loves variety and change and challenge and excitement. . . . Someone has said, you know, that the fifth need of man is for excitement. For us in the Western World nirvana is not enough."

The film shows Dr. Radmore in a variety of typical situations that are part of her work, and she speaks of medicine as a profession and as a science, of women in medicine, of the relationship of radiology to other specialties, and of the tremendous responsibility involved in every decision that is made. In spite of the rigorous demands of her work and the long hours typically demanded of all medical doctors, she has not become a narrow person. Like all of the models, she has many interests, but unlike many of the models who find their work and relaxation indistinguishable, Barbara Radmore has "a very capable partner, so on my days off I take off, mentally, physically and socially. . . . I like to be very engrossed in my work while I'm there and very much away when I'm gone."

She is seen at her home, playing the piano (one of her discarded career choices), listening to opera ("I love everything about it--the soloists and the choruses and all the little incidental parts that aren't even supposed to be great and important."), and looking through one of her books of art reproductions. She expresses some very interesting aesthetic preferences that are an outgrowth of her respect for human anatomy and medical experience. Barbara Radmore is also an outdoor enthusiast and the film shows her fishing and on a romp through the woods with her Great Dane. She finds that solitude and abandonment in nature provide the perfect complement to the intense pressure and continual contact with other people involved in her work. "I have a wonderful feeling when I go to the woods, that it's the place I really belong. I'm pretty big for an elf. So, I always come back [to civilization] and when I'm back I'm glad . . . because the world of people seems even nicer after the quiet and solitude of the woods."

In the final discussion, Dr. Drews and Dr. Radmore are joined by three university professors[*] who use radiology in botanical, zoological and genetics research. They discuss the relationship between basic research and its application in medicine, the difficulties of keeping up with the knowledge explosion, and the growing interrelationship and interdependence of all fields of knowledge. The diverse and often unexpected paths leading to a given field are mentioned, and Dr. Drews summarizes the import of this for students by saying: "I think this indicates the way careers are developing, that the old boundaries don't hold, and that the development of a career is often not a straight line."

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[*] Dr. Leo Mericle, Professor of Botany, Michigan State University; Dr. Rae Mericle, Research Associate in Physics and Astronomy, Michigan State University; Dr. Armon Yanders, Professor of Zoology, Michigan State University.

KAY BRITTEN

The Being and Becoming Film Series, Film No. 6

Kay Britten would be generally classified as a folk singer; however, she sees herself as a "singer of songs." This film shows her as an artist with excellent training and much native talent. But beyond this and, more importantly, the motivations, problems and rewards that accompany a deeply personal commitment to art are revealed. Where Robert von Neumann emphasized the scholarship and technique of art (albeit in the context of highly original expression), Kay Britten reveals the inner joys and struggles of "being and becoming" an artist. As the film begins she is seen playing her guitar, humming to herself. Over this musical background she narrates some of her feelings about singing:

> When I came to this country after the war and was doing very little singing, for a while none at all, I began to feel quite unhappy. I remember one night asking my busy husband, Phil, to sit down and just listen while I played some of my songs, sang to him. . . . You know, singing is a very direct art. There must be someone to listen.

She also speaks of the appeal of folk songs--their great simplicity and yet their capacity to express "all the complex experiences and emotions that people from all over the world have from time to time."

There are several direct sound sequences in the film in which Kay Britten explains how she goes about selecting, altering and learning songs for a concert and, as part of these explanations, she sings. However, the strongest emphasis is autobiographical, as she retraces the steps from her childhood that led her to consider singing as a career and her difficulty in reconciling this desire with the feeling "that there were far more serious things to be done in the world . . . and that I, in singing and so enjoying myself, was being frivolous." It was not until the frenzied days of World War II that she came to terms with this idea. She found that when she "went down into the underground shelters or to the hospitals or to the servicemen's clubs and sang for them there and helped so many people to forget their anxieties, their fears, and sometimes their griefs--then I knew that I was being quite useful."

Kay Britten met and married a young American doctor and came with him to the United States after the war was over. Her singing career gradually became overshadowed by increasingly intense activity in politics, the adjustment to her new life in America, and the demands of raising a family. She discusses her decision:

> Finally there came a time when I had to make a choice. For all kinds of reasons I decided that I would go back to singing. You know, I think this makes me a happier person, pleasanter to live with--and it was a more natural means of expression to me.

She found it essential to express herself by "saying something very personal about many aspects of life--saying it with music and drama." Although her re-commitment to music has taken disciplined, austere, hard work every day and often requires her to be away from home, she feels there are many positive advantages for her family. She says: "It makes me a happier, more interesting, vital person and I have more of the world to bring to them and share with them." She also feels fortunate that she and her husband "have what I consider essential for careerists married to each other--we're both strong and independent and secure enough to allow each other to go his own way and to be able to stand any success the other one has."

In the final interview, Kay Britten again explores the mind and motivation of the artist. Why does she select a particular song? "I choose a song because I like it, and for no other reason. And why do I like some songs better than others? Because they have some special meaning for me, because they say what I want to say." And when discussing the difference between an entertainer and an artist, she claims that "an artist is one who has something unique and special to say for which there is not necessarily an audience at that time. He often has to create his own audience. Sometimes he never does." She recognizes and regrets that "in today's world the artist particularly has a difficult time" and feels that "we lose many young artists because the struggle is so great. Nevertheless, I have always felt that the truly fortunate person in today's world is the artist because an artist is a person who has great curiosity about life and who has a means of expressing all that he feels, all that he's experienced, all that he's known." Kay Britten summarizes much of her life and the main emphasis of this film with her concluding comment: "The artist's rewards--for those who are willing to pay the price--are enormous, they are inner rewards."

LOREN EISELEY

The Being and Becoming Film Series, Film No. 7

Loren Eiseley, who represents the natural sciences in the series, is University Professor of Anthropology and the History of Science at the University of Pennsylvania. He is also Director of the Richard Prentice Ettinger Program for Creative Writing at the Rockefeller Institute. In this film, Dr. Eiseley reveals some of the attributes which allow him to synthesize his scientific interests with his deep philosophical and humane concerns. Among these are the poetic insight he brings to bear on science and the history of man and his world and the fact that "he is not primarily concerned with small studies, isolated information, but instead he is interested in bringing knowledge together and giving it form and structure, continuity and meaning."

Following a brief introduction by Dr. Drews, a view of the seashore at sunrise is presented. Loren Eiseley appears from among the dunes and slowly walks to the edge of the water. As he explores the sand, rocks, dunes, marshes, grasslands and woods of this seaside paradise (Cape May, New Jersey), he speaks in poetic monologue of the immense journey living forms have made from the initial inception of life in the streaming oceans of the past. He reflects that "I, too, am a microcosm of pouring rivulets and floating driftwood gnawed by the mysterious animalcules of my own creation. . . . In many a fin and reptile foot I have seen myself passing by, some part of myself, that is, some part that lies unrealized in the momentary shape I inhabit." He also speaks of the future--of man's innumerable genetic and cultural potentialities--and pleads that "we not bring the wrong kind of future into being by what we might speak of as the magic of ill-considered thought." He explains that when man "sloughed instinct away for a new interior world of consciousness . . . [he] had to create the world of custom to remake in another fashion a substitute for the lost instinctive world of nature." Dr. Eiseley now sees "man's second rock of certitude, his cultural world . . . dissolving even as it grows" and he fears that "the roar of jet aircraft, the ugly ostentation of badly designed cars, the clatter of the supermarket" are not an adequate replacement and will lend neither "stability nor reality to the world we face." This future Loren Eiseley fears is represented visually by a modern parking lot: a plane of paving surrounded by crude and cacaphonous outlets for merchandise--an endless sea of concrete and cars. Here the only representative of the forsaken natural world, other than man himself, is a small tree barely surviving in its bed of easily maintained gravel.

Dr. Eiseley is also seen in his office. As he examines various skulls of early men and other primates, he comments on the true nature of primitive man. Those early people were often brutish and did live in small, isolated worlds, however "out of those worlds, along with all the brutality which existed then and still exists today, there was still that strange sensitivity, that tenderness, that direction toward the future which so characterizes man at his highest moments." Further materials of anthropological and paleontological studies are shown in the museum workshop, where replicas of rare fossils are made with modern casting techniques and then widely distributed to persons wishing to study them. "In this manner it is possible for every man, in a sense, to examine under his own hands the replicas of his own past, his ancestral bones." Dr. Eiseley feels that this knowledge is essential, for "the man who learns to step outside the intellectual climate of his or any age has taken the first step on the road to emancipation, to world citizenship of a higher order."

Dr. Eiseley's monologue concludes showing him back on the seashore, speaking of the importance of studying man's biological and cultural past, and yet warning that "important though that may be to his understanding of himself, [he should not look back] with the idea that there is no road ahead of him, because it is the road ahead now which is both the danger and the promise."

In a biographical interview with Dr. Drews, Dr. Eiseley speaks of his early development and gives several glimpses into his rich personal life. All of this gives further insight into the life of a natural scientist who can ask, so eloquently: "Where has man been, where is he going, what might man become?"

ANNE ROE

The Being and Becoming Film Series, Film No. 8

Anne Roe is a social scientist whose original area of interest was clinical psychology. However, her work and studies have gradually broadened to encompass vocational psychology and career theory as well, and she also has contributed much toward humanistic thinking in the realm of philosophy and evolution. The presentation of her work in the series serves to emphasize that young people should recognize the need for scholarship and humane concern when contemplating career choice and future personal development. The film opens with Dr. Roe making a direct statement to the viewers about the importance of carefully choosing not only a career but also a style of life that will yield the greatest personal satisfaction. She mentions several significant personal and professional considerations and concludes by saying: "All these things are aspects of the relationship between personality and occupation, and it's this type of thing that I've been studying for several years."

As she describes how she went about studying these relationships, Dr. Roe offers insights into the process of research in the social sciences. She speaks of choosing a problem to research, reading the extant and relevant literature, designing the research program and often the tools to implement it, acquiring the necessary data through testing and interviewing, processing the data with the aid of electronic computers, and finally interpreting the processed data in relationship to the original problem. She emphasizes that although machines may be used throughout the entire process, the mind of a human being is always required if the work of the machine is to be meaningful. Dr. Drews explains that the human being is prominent in all research--whether it be in the social or natural sciences--for "our values show in our choice of the problem, the questions we ask or the hypotheses we test, and finally in how we make our generalizations and in the decisions we make."

Anne Roe's values are evident in every phase of her work. The questions in which she is interested are "How do people develop competency in living? How do people become people?" And she would like to see the answers to such questions applied in the schools so that "the child finds out what it means to be human . . . [and] can confront reality zestfully, can face difficulties willingly, and can mobilize all his resources to deal with them." She feels that such self-understanding and awareness are particularly needed today when "our knowledge of technology seems to have outstripped our knowledge of ourselves. . . .

Man alone of all organisms knows that he evolves and he alone is capable of directing his own evolution. If he fails to adapt to new changes, fails to direct his own evolution successfully, he will perish as most species have. Only man will care. And unless he cares enough he will not survive." Since Anne Roe cares very much that men not only survive but do so with some nobility, her work deals with developing the kind of mature and rational men that can insure our survival.

Anne Roe's husband, Dr. George Gaylord Simpson, is also seen at his work. He is a natural scientist specializing in vertebrate paleontology and is shown studying fossils which he and Dr. Roe collected on a recent trip to Africa. The two have often worked together, their most significant effort being the textbook, Quantitative Zoology. "This developed because he [Dr. Simpson] saw that some statistical procedures that I was using for psychological research would be valuable for the study of fossils." Dr. Roe and her husband also enjoy times of relaxation together, and as they listen to some music she comments on other aspects of their work and lives that they profitably share.

In her discussion with Dr. Drews, Dr. Roe relates some of her findings and tells some interesting anecdotes from her research on outstanding career scientists and artists. Again, her deep interest in and respect for the individual as well as the "research findings" is revealed. Dr. Drews comments, at the close of the film, that Anne Roe above all is "warmly human . . . and an ideal person to communicate or to show what a social scientist is--to show man looking at himself and trying to become something more."

HAROLD TAYLOR

The Being and Becoming Film Series, Film No. 9

Harold Taylor has his Ph.D. in philosophy but could perhaps best be described as philosopher-at-large and philosopher-in-action. He is a former president of Sarah Lawrence College and is now working toward the development of a world university, and always he has seen "ideas as prelude to action." As he says, "Anyone who has a set of ideas he can claim as his own should act on them, and . . . unless he does act in the way he thinks he is less of a man than he should be." The feeling conveyed in this film is of intense activity (in contrast to the Eiseley film, which was primarily contemplative), and Harold Taylor not only expresses many of his ideas and beliefs directly to the viewers--ideas about peace, the arts, education, and racial acceptance--he is also shown "in action" at the Museum of Modern Art, an American Friends Service Committee neighborhood center in Harlem, an educational forum at the Dalton School, the home of Broadway composer Harold Rome (where Dr. Taylor plays his clarinet), the Martha Graham dance studio, and finally playing tennis. Each segment is a candid glimpse of Dr. Taylor and the people with whom he talks, works, and plays. Throughout, the importance of personal and intense involvement in humanitarian and aesthetic pursuits is emphasized as a requisite for a full and meaningful life.

Harold Taylor neither categorizes his activities nor compartmentalizes his life. The distinctions between work and play, vocation and avocation, have little meaning for him. He "never think[s] about whether I'm working hard or not working hard. . . . I think that what you can do is make your life as much a complete whole as possible so that what you're doing you enjoy, and what you enjoy is useful to other people. If you can put it together like that then you don't worry about whether you're working hard or not." However, simply stripping away the arbitrary labels, while necessary, is not sufficient to create the good life because " . . . until you make the commitment and investment of yourself in whatever you are doing, you never get the sort of return you need when you try to enjoy life." He feels that "genuine enjoyment in your life consists of losing yourself in it and reaching that level of meaning where you don't have to ask any more what the meaning really is."

Such direct involvement applies not only to life in general but also to appreciation of the arts and one's approach to education. Dr. Drews comments: "I know you've all felt it when you've been to a very good play or a good movie, and you've been right inside with the actors, and you felt your pulse quicken. . . . You are not at all on the outside saying 'Well, what does it matter?' And education should be like that. It should be a direct experience, an involvement, an emotional involvement." Harold Taylor reemphasizes this theme in the discussion at the end of the film as he and Dr. Drews talk with a young student* about how she can accelerate and enhance her own education in spite of the limitations she encounters at school. He suggests that in schools where no one "provokes them into action or gives them leads which can take them farther on in their own learning, . . . there are lots of things that students can do and their parents can do. There are many books, many magazine articles. There are many people who are not formally teachers who know a lot of things." He recognizes that "it is a big responsibility to put on a student to find out the meaning of life all by herself," however, if one is to become a "creative student" one must do precisely this and find "new ways of studying, even, which are your own, and which can take you as a student into new areas of thought."

Harold Taylor discusses many other ideas in this film--among them the role of the arts in education, how world peace and the threat of nuclear war are pertinent to each individual as well as groups of individuals, education in the South and slums in the North. However, his ideas seem to be encompassed by the three main emphases of this film: the translation of ideas into action, the central role of education for any society or individual striving for perfection, and the necessity of complete commitment if one is to truly accomplish something and enjoy doing it.

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*Miss Melody Sibert, a ninth grader at Bath High School, was the student in this sequence.

POSTSCRIPT

The Being and Becoming Film Series, Film No. 10

POST SCRIPT is the final film of the Being and Becoming series. It reiterates many of the ideas expressed in the other films. Isolated direct statements made by each of the models have been edited into a film discussion with Dr. Drews acting as a moderator. The subjects discussed are: enjoyment, commitment and involvement in life and work, the relative importance of the process of working as opposed to the product of one's labors, the need for occasional privacy, time away and apart from other people, how one goes about rekindling the spark of creativity when, occasionally, it seems to have gone out, the responsibility one has towards others and the rewards of contributing to the betterment of society.

In her closing statement Dr. Drews sums up the purpose of the film series and the curriculum as a whole in these words: "We hope this series will pique your curiosity about the world and about yourself, that you'll find all of the exciting things there are to learn in the world, and that you'll become more aware of self-awareness. And we hope that this learning about yourself will be an ever-fascinating and an unending process. You know, the healthy person is a changing and a growing person. And we hope all of this has increased your openness and your awareness, so that you'll try to be, as Henry James has said, ' . . . one of those persons on whom nothing is lost.'"